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(54) Title: NUCLEIC ACID SEQUENCES CHARACTERISTIC OF HEMATOPOIETIC STEM CELLS

(57) Abstract: The present invention relates to novel, isolated nucleic acid sequences that are characteristic of hematopoietic stem cells. The present invention further relates to full-length DNA sequences that encode for 7-transmembrane G-coupled protein receptors and the corresponding amino acid sequences. The present invention further relates to antibodies raised against the proteins consisting of the amino acid sequences.

NUCLEIC ACID SEQUENCES CHARACTERISTIC
OF HEMATOPOIETIC STEM CELLS

BACKGROUND OF THE INVENTION

Hematopoietic Cells

The processes involved in the formation and differentiation of blood cells are collectively called hematopoiesis. There are various types of blood cells, such as red blood cells (erythrocytes), white blood cells (e.g., neutrophils, basophils, and eosinophils and monocytes), lymphocytes, and platelets. Red blood cells are involved in respiratory gas (oxygen and carbon dioxide) transport. White blood cells function to protect the body from infectious diseases and to provide immunity to certain diseases. Monocytes are involved in phagocytosis of pathogens and can develop into macrophages in tissues. Lymphocytes can mount immune responses by direct cell attack or by producing antibodies. Platelets are instrumental in blood clotting and can seal small tears in blood vessels; (Bondurant, M.C. and Koury, M.J. Origin and Development of Blood Cells, In: Lee, G.R., Foerster, J., Lukens, J., Paraskevas, F., Greer, J.P., and Rogers, G.M. (eds). *Wintrobe's Clinical Hematology, 3rd Edition.*

Early stage hematopoiesis involves the infrequent division of early stem cells to generate more stem cells, i.e. self-renewal. In an intermediate stage, the stem cells differentiate into progenitor cells that are irreversibly committed to produce only one or a few lineages of blood cells. In late stage hematopoiesis, the progenitor cells progressively proliferate and develop into terminally-differentiated and mature blood cells of a single lineage.

In humans, hematopoiesis appears to start in blood islands found in the fetal yolk sac during the first trimester of pregnancy. At about six weeks of gestation, hematopoiesis occurs predominantly in the fetal liver. In the beginning of the midtrimester, the bone marrow becomes the main site for hematopoiesis.

Hematopoietic stem cells are operationally defined as cells capable of self-renewal, and of differentiating into all types of mature blood cells. As a result, hematopoietic stem cells are capable of providing long-term hematopoietic reconstitution of ablated animals, including the repopulation of all myeloid and lymphoid cell lines.

Hematopoietic stem cells are morphologically small to medium mononuclear

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(lymphocyte-like) cells. They have a large nuclear/cytoplasmic ratio, with prominent nucleoli and non-basophilic and agranular cytoplasm.

As stem cells reach the intermediate stage of hematopoiesis, they have less capacity for self-renewal and greater capacity for differentiation. Eventually, they become committed to develop into mature blood cells of a single lineage.

The late stage of hematopoiesis involves the formation of mature blood cells. The mature blood cells are not mitotic, and do not self-renew or differentiate. Each particular type of mature blood cell is ultimately committed, terminally differentiated, and limited to a single lineage.

Stromal Cells

In order to function properly, hematopoietic stem cells must be in intimate contact with stromal cells (Dexter, T.M., L.H., Spooncer, E., Heyworth, C.M., Daniel, C.P., Schiro, R., Chang, J., and Allen, T.D. 1990. "Stromal Cells in Hematopoiesis" in: Bock, G., Marsh, J. (eds), *Symposium on Molecular Control of Haemopoiesis* held at Ciba Foundation, London, John Wiley & Sons Ltd., Chichester, p 76-95). Stromal cells are produced in various organs where stem cells exist. Direct cell contact with stromal cells inhibits stem cells from differentiating and promotes self-renewal (Schofield, R. and Dexter, T.M. 1985. "Studies on the Self-Renewal Ability of CFU-S Which Have Been Serially Transferred in *Long Term* Culture or *In Vivo*," Leukemia Res. 9:305-313; Dexter, T.M., Spooncer, E., Simons, P., and Allen, T.D. 1984. "long-term Marrow Culture: An Overview of Techniques and Experience," in: Wright, D.G., Greenberger, J.S. (eds), *Long-Term Bone Marrow Culture,* Alan R. Liss, Inc., New York, p 57-96).

Seven-Transmembrane G-Protein Coupled Receptors

A variety of extracellular stimuli transmit signals through seven-transmembrane G-protein coupled receptors (7TM-GPCRs). Over 1000 members of this family of receptors have been identified and some have served as targets for developing therapeutic agents that block or enhance their function. Members of this receptor family are characterized by an extracellular N-terminus, seven membrane-spanning domain and a cytoplasmic C-terminus.

The primary function of 7TM-GPCRs is to identify a specific signaling molecule or ligand from a large array of chemically diverse extracellular substances. Once identified, these cell-surfaced receptors can activate an effector-signaling cascade that triggers an intracellular

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response and eventually a biological effect.

7TM-GPCRs undergo a conformational change upon binding with a ligand. The conformational change allows the receptors to associate with, and activate, heterotrimeric G-proteins. The G-proteins bind guanine and act to modulate intracellular signal pathways by interacting with a variety of effector molecules. The signals transduced lead to the regulation of important biological processes such as cell growth and differentiation. Disregulated cellular signaling through 7TM-GPCRs can contribute to human disease.

Objectives

A better understanding of stem cells, stromal cells, and their interactions would lead to a better understanding of aberrant regulation and diseases affecting the blood system, which, in turn, would lead to cures of such aberrant regulation and diseases. In addition, it is desirable to gain further insight into the molecular mechanisms underlying the different stages of hematopoietic development. It is also desirable to identify novel human nucleic acid molecules that may be involved in the molecular biology of hematopoiesis or play a role in hematopoietic differentiation or lineage commitment of cells that express such nucleic acid molecules. Additional information on the molecular biology of hematopoiesis is desired in order to improve the transplant therapeutic strategies for the treatment of acquired and genetic disorders of the hematopoietic systems.

7TM-GCPRs are involved in cellular signaling. Increased knowledge of 7TM-GPCRs would lead to a better understanding of cellular signaling. Cellular signaling leads to the regulation of important biological processes such as growth and differentiation. Additional information on the regulation of biological processes such as growth and differentiation would be very beneficial in developing treatments for various human diseases.

SUMMARY OF THE INVENTION

These and other objects as will be apparent to those having ordinary skill in the art have been met by providing an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 to SEQ ID NO: 387. The invention further includes vectors and host cells comprising such nucleic acid molecules.

DETAILED DESCRIPTION OF THE INVENTION

Definitions

The nucleic acid molecules of the invention are selectively expressed in hematopoietic stem cells or stromal cells. For the purposes of this specification, hematopoietic stem cells are cells that are capable of differentiating at least into erythrocytes, neutrophils, basophils, eosinophils, monocytes, lymphocytes, and platelets. Mature hematopoietic cells are progenitor cells that are committed to a particular type of hematopoietic cell or to fully differentiated hematopoietic cells.

Nucleic acid molecules include both DNA and RNA. A nucleic acid molecule is isolated if it is removed from a cell, such as, for example, the cell in which the nucleic acid molecule is naturally found, and at least some of the other nucleic acid molecules that are found in the cell.

Preferably, the nucleic acid molecule is purified. A nucleic acid molecule of the invention is considered purified if it is substantially free from other nucleic acid molecules that are found naturally in the same cell as the nucleic acid molecule of the invention.

A nucleic acid molecule of the invention is considered substantially free from other nucleic acid molecules if the nucleic acid molecule of the invention constitutes at least about 50%, preferably at least about 60%, more preferably at least about 70%, most preferably at least about 80%, and optimally at least about 90%, or even higher, such as about 95%, about 98%, or even about 99% of the total weight of a mixture of nucleic acid molecules.

The nucleic acid molecule may consist of the nucleotides shown in a particular sequence, i.e., not contain any nucleotides other than those shown in SEQ ID NO: 1-387. Alternatively, the nucleic acid molecule may comprise the nucleotides shown in a particular sequence, i.e., include the nucleotides shown in SEQ ID NO: 1-387 as well as nucleotides other than those shown in the SEQ ID NO: 1-387 at either, or both, the 5' or the 3' end of the nucleic acid molecule. Such other nucleotides may include, for example, regulatory elements, such as transcription factors, translation factors, polyadenylation signals, transcription termination sequences, translation termination sequences, transport signals, promoters, transcription enhancers, activation sequences, and the like.

For example, the nucleic acid molecule may be incorporated into a vector. In this specification, a vector is a nucleic acid molecule that comprises an isolated nucleic acid molecule

according to the invention, and that is useful for transfecting cells. The vector may be linear or circular, i.e. a plasmid. Some examples of vectors include cloning vectors and expression vectors.

The invention also includes the nucleic acid molecule shown in SEQ ID NO: 386. This nucleic acid molecule is a full reading frame that encodes a 7TM-GPCR when expressed. (SEQ NO ID: 389)

In addition, the invention includes the nucleic acid molecule shown in SEQ ID NO: 387. This nucleic acid molecule represents the full reading frame of SEQ ID NO: 173. The reading frame for SEQ ID NO: 387 encodes a 7TM-GPCR when expressed. (SEQ ID NO: 388)

The invention also includes antibodies generated against the proteins represented by SEQ. ID NO: 388 or SEQ. ID NO: 389. The antibodies may be polyclonal or monoclonal.

Northern analysis of the nucleic acid molecule of SEQ ID NO: 386 reveals wide expression in the tissue of the brain, heart, lung and kidneys, as well as murine thymus and whole bone marrow.

Northern analysis reveals the nucleic acid molecule of SEQ ID NO: 387 to be expressed in murine bone marrow, thymus and a monoblastic leukemia cell line. The nucleic acid of SEQ ID NO. 387 appears to be restricted to hematopoietic tissues. Further studies reveal that the nucleic acid of SEQ ID NO. 387 is expressed in myeloblastic leukemia (M1) cells.

The invention further includes host cells comprising a nucleic acid molecule according to the invention. The nucleic acid molecule may be in a vector that has been transfected into the host cell, such as a cloning vector or an expression vector. Alternatively, the nucleic acid molecule may be incorporated into the genome of the host cell. In either event, the host cell preferably replicates or expresses the nucleic acid molecule, and more preferably both replicates and expresses the nucleic acid molecule.

The host cells may be used to express the polypeptides and proteins encoded by the nucleic acid molecules of the invention. Further, antibodies may be raised against epitopes of the expression products.

Equivalents

The nucleic acid molecules of the invention include homologs of the nucleic acid sequences provided in this application. In the present specification, the sequence of a first

nucleotide sequence is considered homologous to that of a second nucleotide sequence if the first sequence is at least about 60% identical, preferably at least about 70% identical, and more preferably at least about 75% identical to the second nucleotide sequence. In the case of nucleotide sequences having high homology, the first sequence is at least about 80%, preferably at least about 85%, more preferably at least about 95%, and optimally at least about 98% or 99% identical to the second nucleotide sequence.

In order to compare a first nucleic acid sequence to a second nucleic acid sequence for the purpose of determining homology, the sequences are aligned so as to maximize the number of identical nucleotides. The sequences of homologous nucleic acid molecules can usually be aligned by visual inspection. If visual inspection is insufficient, the nucleic acid molecules may be aligned in accordance with the methods described by George, D.G. et al., in *Macromolecular Sequencing and Synthesis, Selected Methods and Applications*, pages 127-149, Alan R. Liss, Inc. (1988), such as formula 4 at page 137 using a match score of 1, a mismatch score of 0, and a gap penalty of -1.

An alternative test for homology of two nucleic acid sequences is whether they hybridize under normal hybridization conditions, preferably under stringent hybridization conditions.

The term "stringent conditions," as used herein, is equivalent to "high stringent conditions" and "high stringency." High stringent conditions are defined in a number of ways. In one definition, stringent conditions are selected to be about 25°C lower than the thermal melting point (T_m) for DNA or RNA hybrids longer than 70 bases, and 5°C lower than the T_m for shorter oligonucleotides (11-70 bases long). The T_m is the temperature (under defined ionic strength and pH) at which 50% of the target sequence hybridizes to a perfectly matched sequence. Typical stringent conditions are those in which the salt concentration is about 0.02 M at pH 7.0 and the temperature is calculated as described below.

The following equations are used to calculate the T_m of the following hybrids at pH 7.0: For DNA hybrids of more than 70 nucleotides: $T_m = 81.5°C + 16.6 \log [M^+] + 41(\%G + C) - 0.63(\% \text{ formamide}) - (600/L)$. For DNA:RNA hybrids of more than 70 nucleotides: $T_m = 79.8°C + 18.5 \log[M^+] + 58.4(\%G + C) + 11.8(\%G + C)^2 - 0.5(\% \text{ formamide}) - 820/L$. For DNA or RNA hybrids of 14-70 bases: $T_m = 81.5°C + 16.6 \log [M^+] + 41(\%G + C) - 600/L$. For DNA or RNA hybrids of 11-27 bases (based on 1 M Na$^+$ and in the complete absence of organic solvents): $T_m = 4(\%G + C) + 2(\%A + T/U)$.

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Where

T_m = thermal melting temperature;

%G+C = percentage of total guanine and cytosine bases in the DNA, usually

30% -75% (50% is ideal), and expressed as a mole fraction;

$[M^+]$ = monovalent cation concentration, usually sodium, expressed in molarity in the

range of 0.01 M to 0.4 M; and

L = length of the hybrid in base pairs;

%A+T = mole fraction of total adenine and thymine bases in the DNA.

%A+T/U = mole fraction of total adenine and thymine or uracil bases in the DNA or

RNA.

Some examples of "stringent conditions" useful in the present invention include overnight incubation at a hybrid temperature determined as described above in a solution comprising: 20% formamide, 5 x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5 x Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA. Alternatively, the stringent conditions are characterized by a hybridization buffer comprising 30% formamide in 5 x SSPE (0.75 M NaCl, 0.05 M NaPO₄, pH 7.7, 5 mM EDTA) buffer at a temperature determined as described above and subsequent washing at the same temperature with 0.2 x SSPE. Preferably, stringent conditions involve the use of a hybridization buffer comprising 50% formamide in 5 x SSPE at a temperature determined as described above and washing at the same temperature with 0.2 x SSPE (0.03 M NaCl, 2 mM NaPO₄, pH 7.7, 0.2 mM EDTA).

SEQ ID NOS: 1-387 were derived from murine hematopoietic stem cells (SEQ ID NO: 1-248), or stromal cells (SEQ ID NO: 249-387). The nucleic acid molecules of the invention further include homologous sequences found in humans in accordance with the definitions of homology described above. The human sequences are derived from the same types of cells as the corresponding murine sequences, share homology, generally high homology, with the corresponding murine sequences, and are useful in the same ways as the corresponding murine sequences.

Human Equivalents

Positive human cDNA clones may be isolated and sequence analysis of the clones may be performed by methods known in the art. Sequence comparisons may be carried out by screening several databases, e.g., dbEST, GenBank, Swiss-Prot, and EMBL.

The human nucleic acid molecules screened by the methods described above may be from human cDNA or genomic libraries, preferably derived from hematopoietic cells or cell lineages. Particularly useful cells for this purpose include hematopoietic cells that are CD34+, CD38-, lin-, or any combination thereof. Such cells may be enriched for hematopoietic stem cells from bone marrow cells by standard methods well known in the art by which nucleated non-adherent cells are prepared to provide a rich source of hematopoietic stem cells.

Stromal cells may also be prepared from bone marrow cells by a similar process, this time selecting adherent cells. Larger numbers of stromal cells may also be prepared from umbilical cord blood. Another commonly used and readily available source of human cDNAs is the commercially available human liver cDNA libraries.

Utility

The nucleic acid molecules of the invention are useful in numerous ways. For example, since hematopoietic stem cells selectively express the nucleic acid molecules of the invention, assays that are capable of determining the presence of the nucleic acid molecules in a sample are capable of distinguishing such cells from most, if not all, other types of cells, such as mature hematopoietic cells and non-hematopoietic cells.

Thus, if a nucleic acid molecule of the invention, or its complement, is expressed in a cell, the cell is considered to have a high likelihood of being a hematopoietic stem cell. Methods for determining whether a nucleic acid molecule is expressed in a cell are known in the art. For example, high molecular weight DNA from a cell can be restricted with restriction enzymes and fractionated by agarose gel electrophoresis. The restricted fragments are denatured, transferred to a nitrocellulose filter, and immobilized (Southern transfer). A labeled nucleic acid molecule of the invention or its complement is prepared and used as a probe. The presence of the labeled probe hybridized to an immobilized nucleic acid molecule indicates the presence of the nucleic acid molecule in the sample.

Alternatively, the labeled probe is applied directly to fixed, denatured, and dehydrated

hematopoietic cells to localize the cellular transcripts in the cells and to identity the cell types that transcribe the mRNA of interest (*in situ* hybridization). Examples of these methods are described by Ausubel, F.M. et al. (eds), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999).

Nucleic acid molecules of the invention can be labeled by methods known in the art. The label may be a radioactive atom, an enzyme, or a chromophoric moiety.

Methods for labeling oligonucleotide probes have been described, for example, by Leary et al., Proc. Natl. Acad. Sci. USA, 80:4045 (1983); Renz and Kurz, Nucl. Acids Res. 12:3435 (1984); Richardson and Gumport, Nucl. Acids Res., 11:6167 (1983); Smith et al., Nucl. Acids Res. 13:2399 (1985); Meinkoth and Wahl, Anal. Biochem., 138:267 (1984); and Ausubel, F.M. et al. (Eds.) Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York, 1999.

The label may be radioactive. Some examples of useful radioactive labels include ^{32}P, ^{125}I, ^{131}I, ^{35}S, ^{14}C, and ^{3}H. Uses of radioactive labels have been described in U.K. 2,034,323, U.S. 4,358,535, and U.S. 4,302,204.

Alternatively, the label may be non-radioactive. Some examples of non-radioactive labels include enzymes, chromophores, atoms and molecules detectable by electron microscopy, and metals detectable by their magnetic properties.

Some useful enzymatic labels include enzymes that cause a detectable change in a substrate. These useful enzymes and their substrates include, for example, horseradish peroxidase (pyrogallol and o-phenylenediamine), beta-galactosidase (fluorescein beta-D-galactopyranoside), and alkaline phosphatase (5-bromo-4-chloro-3-indolyl phosphate/nitro blue tetrazolium). The use of enzymatic labels have been described in U.K. 2,019,404, EP 63,879, in Ausubel, F.M. et al. (Eds.), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999), and by Rotman, Proc. Natl. Acad. Sci. USA 47:1981-1991 (1961).

Useful chromophores include, for example, fluorescent, chemiluminescent, and bioluminescent molecules, as well as dyes. Some specific chromophores useful in the present invention include, for example, fluorescein, rhodamine, Texas red, phycoerythrin, umbelliferone, luminol.

The labels may be conjugated to the nucleotide probe by methods that are well known in the art. The labels may be directly attached through a functional group on the probe. The probe either contains or can be caused to contain such a functional group. Some examples of suitable

functional groups include, for example, amino, carboxyl, sulfhydryl, maleimide, isocyanate, isothiocyanate.

The nucleic acid molecules of the invention are also useful in ways other than those described above. For example, the nucleic acid molecules are useful in identifying nucleic acid molecules that comprise one or more of the sequences in SEQ. ID NO 1 to SEQ. ID NO 387 and additional nucleotides at the 5' end, the 3' end, or both the 5' and a 3' ends. Such longer nucleic acid molecules express proteins that are involved in hematopoiesis. Such proteins are important to improve the understanding of hematopoiesis, and may be important in treating conditions characterized by abnormal hematopoiesis.

Methods to identify longer nucleic acid molecules that comprise one or more of SEQ. ID NO: 1 to SEQ. ID NO: 385 are known in the art. For example, a suitable method is the polymerase chain reaction (PCR) method described by Saiki et al. in Science 239:487 (1988); Mullis et al. in U.S. Patent No. 4,683,195; and Ausubel, F.M. et al. (eds), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999).

For extension of the sequence of the nucleic acid of the present invention, the RACE (rapid amplification of cDNA ends) method for 5'-end extension is particularly useful. See, for example, Frohman, "RACE" in PCR Protocols: A Guide to methods and Applications (Innes, M.A. ed.) Academic Press, San Diego, pp28-38 (1990). Briefly, primers oriented in the 5' and 3' directions are chosen to produce overlapping cDNAs when fully extended. The overlapping 5' and 3' end RACE products are ligated to produce longer nucleic acid molecules, such as full length cDNAs and genes. See, for example, Frohman, M.A. "RACE: Rapid Amplification of cDNA Ends" in PCR Protocols, A Guide to Methods and Applications. Innis, M.A. et al. (eds), Academic Press, Inc., New York (1990).

In the PCR methods described above, nucleic acid molecules of the invention are used as primers for PCR amplification. The oligonucleotide primers may be synthesized by methods known in the art. Suitable methods include those described by Caruthers in Science 230:281-285 (1985) and DNA Structure, Part A: Synthesis and Physical Analysis of DNA, Lilley, D.M.J. and Dahlberg, J.E. (eds), Methods Enzymol., 211, Academic Press, Inc., New York (1992). The amplified fragment may be cloned, sequenced and further amplified to obtain longer nucleic acid molecules that comprise one or more of the sequences in SEQ. ID NO: 1 to SEQ. ID NO: 385. It is convenient to amplify the clones in the lambda-gt10 or lambda-gt11 vectors using lambda-gt10

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or lambda-gt11-specific oligomers as the amplimers (available from Clontech, Palo Alto, California).

The labeled murine probes can be used by various methods known in the art to screen human hematopoietic tissues or cells. Such screening can, for example, show where and how the human gene is being expressed and transcribed (northern blot analysis). See Sambrook, J. et al. (eds), Molecular Cloning, Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York (1989) and Ausubel, F.M. et al. (eds), Current Protocols in Molecular Biology, John Wiley & Sons, New York (1999).

The murine nucleic acid molecules of the invention may also be used as probes and used to isolate the corresponding human homolog by methods known in the art. For example, the murine nucleic acid molecules may be used as PCR primers to screen a human DNA (cDNA or genomic) library. The PCR methods described above, such as RACE, are suitable for this purpose. See, for example, Zeng et al., Biochem. Biophys. Res. Comm., 236, 389-395 (1997), and Morita et al., Biochem. Biophys. Res. Comm., 248, 307-314 (1998). See also Buanne et al., Genomics 51, 233-242 (1998).

Alternatively, the nucleic acid molecules may be immobilized and used to capture human nucleic acid molecules having homology, preferably high homology, as described above from an appropriate human nucleic acid library. Methods for using nucleic acid molecules to immobilize and capture homologous nucleic acid molecules are known in the art. The conditions used in the capture procedure are highly stringent, as described above.

Another utility of the nucleic acid molecules of the invention is the mapping of DNA sequences specific to hematopoietic stem cells to chromosomes. The sequences may be mapped to a particular chromosome, or to a specific region of the chromosome by techniques known in the art. An example of a useful technique is fluorescent in situ hybridization (FISH) analysis. See, for example, Ausubel, F.M. et al. (eds), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999); Verma et al. (1988) Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York, and U.S. Patent 5,447,841 of Gray et al.

The DNA of SEQ. ID NOS: 386 and 387 and the proteins corresponding to them in SEQ. ID NOS: 388 and 389 may be used to identify the types of cells in which they are expressed. These sequences can also be used to investigate cellular signaling between 7TM-GPCRs. Furthermore, the sequences may be helpful in the identification of new 7TM-GPCRs.

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Additionally, the DNA of SEQ ID NOS. 386 and 387 encode for 7TM-GCPRs. 7TM-GPCRs are expressed on stem cells. Therefore, the DNA of SEQ ID NOS. 386 and 387 could serve as markers that can be used to sort stem cells. Sorted stem cells may be therapeutically useful, for example, in transplantations.

The 7TM-GCPRs corresponding to the DNA of SEQ ID NOS. 386 and 387 are expressed in myeloblastic leukemia (M1) cells, and play a role in leukemia. Hence, the development of inhibitors to the 7TM-GPCRs that correspond to the DNA of SEQ ID NOS. 386 and 387 provide a promising treatment to inhibit leukemia progression. This inhibition can occur via growth or differentiation inhibition.

In addition, the DNA of SEQ ID NOS. 386 and 387 and the proteins corresponding to them in SEQ. ID. NOS 388 and 389 may be used in the development of inhibitors of leukemic progression. The 7TM-GPCR corresponding to SEQ ID NOS. 386-389 is expressed in leukemia cells, particularly, myeloblastic leukemia (M1) cells. Therefore, development of inhibitors to the 7TM-GPCR will also inhibit leukemic progression. The inhibition of leukemic cells can occur via agonists or antagonists of the 7TM-GPCR that may induce differentiation as an anti-leukemia therapy.

Antisense Oligonucleotides

The present invention provides antisense or sense oligonucleotides capable of binding to a target mRNA or to the sequence in the double stranded DNA helix of SEQ ID NOS. 386 and 387. Antisense or sense oligomers according to the present invention, comprise a fragment of the coding region of the cDNA of SEQ ID NOS. 386 and 387. Such a fragment generally comprises at least 14 nucleotides, preferably about 14 to 30 nucleotides. The ability to create an antisense or sense oligonucleotide based upon a cDNA sequence for a given protein is known in the prior art and described in, for example, Stein and Cohen, *Cancer Res.* 48:2659, 1988 and van der Krol, et al., *BioTechniques* 6:958, 1988.

Binding of antisense or sense oligonucleotides to target nucleic acid sequences results in the formation of complexes that block translation (RNA) or transcription(DNA) by one of several means, including enhanced degradation of the duplexes, premature termination of transcription or translation, or by other means. The antisense oligonucleotides thus may be used to block expression of the proteins of SEQ ID NOS. 388 and 389 which correspond to the nucleic acids of

SEQ ID NOS. 386 and 387.

The antisense or sense oligonucleotides of the present invention further comprise oligonucleotides having modified sugar-phosphodiester backbones or other sugar linkages, which resist enzymatic degradation but retain sequence specificity to be able to target nucleotide sequences.

Antisense or sense oligonucleotides of the present invention may be introduced into a cell containing the target nucleic acid sequence by any gene transfer method, including for example, CaPO$_4$-medited DNA transfection, electroporation, or by using gene transfer vectors. Antisense or sense oligonucleotides of the present invention also may be introduced into a cell containing the target nucleotide sequence by formation of a conjugate with a ligand binding molecule, for example, cell surface receptors, growth factors, other cytokines or ligands that bind cell surface receptors.

Isolated and purified DNA of SEQ ID NOS. 386 and 387, or fragments thereof, may also be useful themselves as therapeutic agents in regulating the corresponding proteins of SEQ ID NOS. 388 and 389, which belong to the family of 7TM-GCPRs.

Antibodies

The present invention provides antibodies and/or functional equivalents of antibodies raised against the proteins represented by the amino aid sequences of SEQ. ID NO: 388 and SEQ. ID NO: 389. An antibody is defined as a protein that binds specifically to an epitope. The antibody may be polyclonal or monoclonal. The invention further includes isolating neutralizing antibodies that specifically recognize and bind to the proteins and functional analogs of the invention.

For this application, the functional equivalent of an antibody is preferably a chimerized or humanized antibody. A chimerized antibody comprises the variable region of a non-human antibody and the constant region of a human antibody. A humanized antibody comprises the hypervariable region (CDRs) of a non-human antibody. The variable region other than the hypervariable region, e.g. the framework variable region, and the constant region of a humanized antibody are those of a human antibody.

Suitable variable and hypervariable regions of non-human antibodies may be derived from antibodies produced by any non-human mammal in which monoclonal antibodies are made.

Suitable examples of mammals other than humans include, for example, rabbits, rats, mice, horses, goats, or primates. Preferably, the antibodies are human antibodies. The antibodies may be produced in a transgenic mouse. An example of such a mouse is the so-called XenoMouse™ (Abgenix, Freemont, CA) described by Green, LL., "Antibody Engineering Via Genetic Engineering of the Mouse: XenoMouse Stains are a Vehicle for the Facile Generation of Therapeutic Human Monoclonal Antibodies," *J. Immunol. Methods*," 10;231(1-2):11-23(1999).

Functional equivalents of antibodies further include fragments that have binding characteristics that are the same as, or are comparable to, those of the whole antibody. Suitable fragments of the antibody include any fragment that comprises a sufficient portion of the hypervariable (i.e. complementary determining) region to bind specifically, and with sufficient affinity, to 7TM-GPCR.

The preferred fragments are single chain antibodies. Single chain antibodies are polypeptides that comprise at least the variable region of the heavy chain of the antibody and the variable region of the light chain, with or without an interconnecting linker.

The antibodies and functional equivalents may be members of any class of immunoglobins, such as: IgG, IgM, IgA, IgD or IgE, and the subclass thereof. The functional equivalents may also be equivalents of combinations of any of the above classes and subclasses.

Methods for making monoclonal antibodies include, for example, the immunological method described by Kohler and Milstein in *Nature* 256:495-497 (1975) and by Camplbell in "Monoclonal Antibody Technology, The Production and Characterization of Rodent and Human Hybridomas" in Burdon, et al., Eds, Laboratory Techniques in Biochemistry and Molecular Biology, Volume 13, Elsevier Science Publishers, Amsterdam (1985). The recombinant DNA method described by Huse, et al. in *Science* 246:1275-1281 (1989) is also suitable.

Briefly, in order to produce monoclonal antibodies, a host mammal is inoculated with a receptor or a fragment of a receptor, as described above, and t hen, optionally, boosted. In order to be useful, the receptor fragment must contain sufficient amino acid residues to define the epitope of the molecule being detected. If the fragment is too short to be immunogenic, it may be conjugated to a carrier molecule. Some suitable carrier molecules include keyhold limpet hemocyanin and bovine serum albumin. Conjugation may be carried out by methods known in the art. One such method is to combine a cysteine residue of the fragment with a cysteine residue on the carrier molecule.

Spleens are collected from the inoculated mammals a few days after the final boost. Cell suspensions from the spleen are fused with a tumor cell. The resulting hybridoma cells that express the antibodies are isolated, grown and maintained in culture.

Suitable monoclonal antibodies as well as growth factor receptor tyrosine kinases for making them are also available from commercial sources, for example, from Upstate Biotechnology, Santa Cruz Biotechnology of Santa Cruz, California, Transduction Laboratories of Lexington, Kentucky, R&D Systems Inc of Minneapolis, Minnesota, and Dako Corporation of Carpinteria, California.

Methods for making chimeric and humanized antibodies are also known in the art. For example, methods for making chimeric antibodies include those described in U.S. patents by Boss (Celltech) and by Cabilly (Genentech). See U.S. Patent Nos. 4,816,397 and 4,816,567, respectively. Methods for making humanized antibodies are described, for example, in Winter, U.S. Patent No. 5,225,539.

Antibodies or antibody fragments can also be isolated from antibody phage libraries generated using techniques, for example, described in McCafferty et al., *Nature*, 348: 552-554 (1990), using the antigen of interest to select for a suitable antibody or antibody fragment. Clackson et al., *Nature*, 352: 624-628 (1991) and Marks et al., J. Mol. Biol., 222: 581-597 (1991) describe the isolation of murine and human antibodies, respectively, using phage libraries. Subsequent publications describe the production of high affinity (nM range) human antibodies by chain shuffling (Mark et al., Bio/Technol. 10: 779-783 (1992)), as well as combinatorial infection and in vivo recombination as a strategy for constructing very large phage libraries (Waterhouse et al., *Nuc. Acids Res.*, 21: 2265-2266 (1993)). These techniques are viable alternatives to traditional monoclonal antibody hybridoma techniques for isolation of "monoclonal" antibodies (especially human antibodies).

The preferred method for the humanization of antibodies is called CDR-grafting. In CDR-grafting, the regions of the mouse antibody that are directly involved in binding to antigen, the complementarity determining region or CDRs, are grafted into human variable regions to create "reshaped human" variable regions. These fully humanized variable regions are then joined to human constant regions to create complete "fully humanized" antibodies.

In order to create fully humanized antibodies that bind well to an antigen, it is advantageous to design the reshaped human variable regions carefully. The human variable

regions into which the CDRs will be grafted should be carefully selected, and it is usually necessary to make a few amino acid changes at critical positions within the framework regions (FRs) of the human variable regions.

For example, the reshaped human variable regions may include up to ten amino acid changes in the FRs of the selected human light chain variable region, and as many as twelve amino acid changes in the FRs of the selected human heavy chain variable region. The DNA sequences coding for these reshaped human heavy and light chain variable region genes are joined to DNA sequences coding for the human heavy and light chain constant region genes, preferably $\gamma 1$ and κ, respectively. The reshaped humanized antibody is then expressed in mammalian cells and its affinity for its target compared with that of the corresponding murine antibody and chimeric antibody.

Methods for selecting the residues of the humanized antibody to be substituted and for making the substitutions are well known in the art. See, for example, Co et al., *Nature* 351:501-502 (1992); Queen et al., *Proc. Natl. Acad. Sci.* 86: 10029-1003 (1989) and Rodrigues et al., *Int. J. Cancer*, Supplement 7: 45-50 (1992). A method for humanizing and reshaping the 225 anti-EGFR monoclonal antibody described by Goldstein et al. in PCT application WO 96/40210. This method can be adapted to humanizing and reshaping antibodies against other growth factor receptor tyrosine kinases.

Methods for making single chain antibodies are also known in the art. Such methods include screening phage libraries transfected with immunoglobulin genes described in U.S. Patent 5,565,332; U.S. Patent 5,5837,242; U.S. Patent 5,855,885; U.S. Patent 5,885,793; and U.S. Patent 5,969,108. Another method includes the use of a computer-based system for designing linker peptides for converting two separate polypeptide chains into a single chain antibody described in U.S. Patent 4,946,778; U.S. Patent 5,260,203; U.S. Patent 5,455,030; and U.S. Patent 5,518,889.

Other methods for producing the functional equivalents of antibodies described above are disclosed by Wels et al. in European patent application EP 502 812 and *Int. J. Cancer* 60:137-144 (1995); PCT Application WO 93/21319; European Patent Application 239 400, PCT Application WO 89/09622; European Patent Application 338 745; U.S. Patent 5,658,570; U.S. Patent 5,693,780; and European Patent Application EP 332 424.

The antibodies that bind specifically to the proteins comprising the amino acid sequences

of SEQ ID NOS: 388 and 389 can be used to detect the presence of said proteins. Assays for detecting the presence of proteins with antibodies can be performed using known formats such as standard blot and ELISA formats.

The antibodies that bind specifically to the protein comprising the amino acid sequence of SEQ ID NO. 388 can be used to identify murine bone marrow and thymus cells as well as cells of the monoblastic leukemia cell line in which it is expressed. The antibodies corresponding to the protein comprising the amino acid sequence of SEQ ID NO. 389 can be used to identify brain, heart, lung and kidney cells.

The antibodies of the invention may be used therapeutically as cytotoxic agents against, for example, leukemia cells. Antibodies with proper biological properties are useful directly as therapeutic agents. See, for example, U.S. Patent No. 5,134,075. Alternatively, the antibodies can be bound to a toxin to form an immunotoxin or to a radioactive material or drug to form a radiopharmaceutical or pharmaceutical. Methods for producing immunotoxins and radiopharmaceuticals of antibodies are well-known. See, for example, *Cancer Treatment Reports* (9184) 68: 317-328.

EXAMPLES

Hematopoietic Stem Cell Isolation /Sorting and Transplantation:

AA4+Sca1+c+kit+Lin-/lo (hematopoietic stem cell-enriched) and AA4- (hematopoietic stem cell depleted) cells were isolated by fluorescence activated cell sorting from the fetal liver of C57BL/6j-Ly-5.2 mice on day 14 of gestation as follows: quantitative enrichment of stem cell fractions was performed according to described protocols. Fetal livers were dissected from day 14 embryos in a sterile environment. Single cell suspensions were subjected to immunopanning with AA4.1 antibody. The AA4.1 positive fraction was then stained with fluorescein isothiocyanate (FITC)-labeled rat anti-CD3, CD4, CD5, CD8, CD45R, Gr-1 and TER-119 antibodies (called the "lin" set of antibodies). Cells were also stained with phycoerythrin (PE)-conjugated anti-Sca-1 (Ly-6A/E) and allophycocyanin (APC0-conjugated anti-c-kit. All antibodies were obtained from Pharmingen (San Deigo, CA). Stained cells were separated on a dual laser EPICS 753 cell sorter (Beckman Coulter, San Diego, CA) by selection of high PE and APC as well as low FITC fluorescence. Cells used for cDNA library production were tested for

their stem cell potential in competitive repopulation assays that test the ability of stem cells to reconstitute the radioblated hematopoietic system of recipient mice.

This transplantation assay was performed essentially by methods known in the art. For the fetal liver, specified numbers of cells (25, 50, 100 or 250) were mixed with 400,000 C57B1/6-Ly-5.1 whole bone marrow cells and injected into the retro-orbital sinus of each irradiated (10 Gy) mouse. The level of engraftment was measured at different timepoints as the percent C57b1/6J-Ly-5.2 (donor) cells in the peripheral blood of transplanted Ly-5.1 animals. Animals demonstrating engraftment at least two standard deviations higher than the mean of negative controls were considered positive.

CDNA Library Construction and Subtractive Hybridization

Sorted cells were placed directly into Trizol (BRL-Gibco) reagent and treated with RNAse-free DNAse I according to the manufacturers protocols. The polyA-plus fraction was purified on oligo-dT cellulose (New England Biolabs). Prior to first strand cDNA synthesis, the mRNA was denatured using methyl-mercury hydroxide. The first and second strand cDNA was synthesized using the reverse transcriptase SuperScript II, DNA polymeraseI, RNAseH and *E.coli* ligase. The first-strand primer was oligo-dT with a 5' Notl site. Double-stranded cDNA was blunt-ended with T4-DNA polymerase and ligated to a Sall adapter with T4-DNA ligase. The ligated cDNA was digested with Notl and size fractionated on columns. Size fractions 1 kilobase pair (kbp.) and greater in length were pooled and ligated in to the Sall-Notl sites of either pSport-1 (stem cell library) or pSport-2 (mature cell library). The ligations were electroporated into *E.coli* strain DH12S, titered and amplified on agar plates. Except where indicated, all of the reagents and protocols for the construction of the cDNA were from BRL-Gibco.

The basic strategy used to perform the subtractions has been described (Rubenstein et al. 1990, Li et al. 1994). Briefly, the stem cell library was converted into single stranded molecules by *in vivo* infection with helper phage according to BRL-Gibco protocols. Cesium gradient banded DNA from the mature cell library was linearized with Sall and used as template for the synthesis of biotinylated RNA using T7-polymerase. The use of the two different cloning plasmids insures that the RNA is complementary to the single-stranded cDNA inserts in the stem cell library. Hybridization conditions and the post-hybridization processing of the reactions were essentially as described in the BRL-Gibco protocols. Two successive rounds of hybridization

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were performed. The resultant subtracted single-stranded DNA populations were repaired to a double-stranded from and amplified in *E.coli* DH12S. The DNA populations representing the subtracted libraries were purified on Cesium gradients. In order to eliminate the plasmids which did not contain inserts (these are enriched following subtraction), the library DNAs were linearized with NotI and subjected to four successive agarose gel electrophoresis fractionations. After each electrophoresis gel the DNA smear corresponding in size to vector plus 1 kbp and greater was excised and eluted using the sodium iodide/glass bead procedure. After four such fractionations essentially all empty plasmids were eliminated.

The resultant DNA population was introduced into *E.coli* DH12S and individual clones were robotically picked into 384-well plates. A separate aliquot of the library was amplified as a population and used to prepare DNA. The subtraction efficiencies were verified by monitoring the clone number reduction as a function of hybridization with biotinylated RNA in comparison with mock hybridizations lacking RNA. Generally, this was on the order of 100-fold. A more direct measure of subtraction efficiency was obtained by hybridizing pre and post-subtraction cDNA Southern blots with probes such as beta-actin, CD34 and flk-2. The DNA populations on the blots represent approximately equal numbers of individual clones. The cDNAs corresponding to the CD34 and flk-2 molecules (both previously shown to be expressed preferentially in the stem cell-enriched populations are enriched or at least retained in the subtracted libraries. Special care was taken to carefully monitor the minimal number of PCR cycles necessary to produce the required amount of amplified product. This was done by performing pilot reactions using 2 cycle increments.

The amplified material representing different numbers of PCR cycles were analyzed in triplicate Southern blots that were hybridized with probes representative of different mRNA size classes. In various experiments these included GAPDH, beta-actin, flk-2, CD34 and ckit. Cycle numbers where discrete full-length cDNA products were observed with little or no detectable lower molecular weight material were determined and, in general, the preparative amplifications employed 1 fewer cycles. The amplified cDNA material was used to generate libraries as described above. Alternatively, the cDNA was used for PCR-Select subtractions. These methods were performed by methods well known in the art.

DNA Sequencing

Initial sequences were obtained by chain termination using the Sequenase Version 2.0 kit (U.S. Biochemicals). The majority of randomly selected sequences were generated by single-pass automated sequencers by Commonwealth Biotechnologies, Inc. (Richmond, VA) or by Incyte Pharmaceuticals Inc. (Palo Alto, CA).

Biological Sequence Analysis

DNA sequences and conceptual translations were compared with known nucleotide and protein sequences using the BLAST algorithm (blastn for nucleotide and blastx for protein databases). Six publicly-accessible databases were searched: SwissProt, Genbank nr protein, Genbank nr nucleotide, dbEST expressed sequence tags, and the murine and human DOTS databases of EST contigs. Sequences were also compared with those in SCBD itself as a measure of internal redundancy. Potential open reading frames (ORFs) were located using ORF finder (NCBI, Bethesda, MD). Protein motif searches were performed using five different motif identification programs: Prosite (PBIL, France), Pfam (Washington University, St. Louis), ProDom (INRA, France), SMART (EMBL, Heidelberg, Germany) and eMatrix (Stanford University). Transmembrane helices were detached using the TMPred server, and potential signal peptides were detected with SignalP. Subcellular localizations were predicted in some cases using PSORT II.

CLAIMS

1.   An isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 to SEQ ID NO:385.

2.   An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is a DNA molecule.

3.   An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is an RNA molecule.

4.   An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is purified.

5.   A vector comprising a nucleic acid molecule according to claim 1.

6.   A vector according to claim 2 wherein the vector is a cloning vector.

7.   A vector according to claim 2 wherein the vector is an expression vector.

8.   A host cell comprising a nucleic acid molecule according to claim 1.

9.   A host cell according to claim 8 wherein the nucleic acid molecule is in a vector.

10.   A host cell according to claim 8 wherein the vector is a cloning vector.

11.   A host cell according to claim 8 wherein the vector is an expression vector.

12.   A host cell according to claim 8 wherein the nucleic acid molecule is incorporated into the genome thereof.

13.   A host cell according to claim 8 wherein the host cell expresses the nucleic acid molecule.

14.   An isolated nucleic acid molecule comprising SEQ. ID NO: 386.

15.   An isolated nucleic acid molecule comprising SEQ. ID NO: 387.

16.   An isolated protein comprising the amino acid sequence of SEQ ID NO. 388.

17.   An isolated protein comprising the amino acid sequence of SEQ ID NO. 389.

18.   An antibody that binds specifically to the protein according to claim 16.

19.   An antibody that binds specifically to the protein according to claim 17.

SEQUENCE LISTING

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ggaacacagc tctgcattaa agcgtgttct ca                            572


<210> 12
<211> 563
<212> DNA
<213> Mouse

<400> 12
ctgaggaact tcatccaaac tgaagctgtg gtcagcaagc ccttcagcct ctttgacctc 60
agcagtgttg gattgttcgg ggcagagaca cagcagaata aagtggcccc aagcagcgca 120
ncagccgccc tgtcctgtcc agtcgttctg accagagcca aaagaatgag gtgtttttgg 180
atgtggtgga gagactgtct gtactgattg catctaatgg ctcgttgttg aaggtggacg 240
tccaaggaga gatacggctc aagagcttcc ttcccagcgg ttctggtgag aaccaatggt 300
taggtgtggc gcaggcttcc ttgtgatgtg catggtggta tttgctatcc cttttctcat 360
gtccttcctc ccacagagat atgcattggc ttgacagaag aatttgtgtt ggaaagtcag 420
nactgagagg ntatggggcc agggattcga gttgatgagg tgtcattcca tagttctggn 480
caatctagan gagtttgnag tctcaatcgg ntcctccgcc tgcagncacc ttcangggcg 540
aaccgactgt tgaatganaa anc                                      563


<210> 13
<211> 652
<212> DNA
<213> Mouse

<400> 13
gtgctttggt ctggcagagg tggtggcggc gagagcggcc gggaagatgc cagtggcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggt cagcttctag ctttgtactt 180
gctccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
```

5

```
tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttgttgga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggc cgactccacc acaagaatgg ttcttcccag 540
gaaagccagc ctcaggnanc ctgggatgtc tccttgaaca ggtttatccc cttatcagag 600
ctgcccccag ttccgccaat ccccaatgag cagcagttcg gccgggtcaa cc         652
```

```
<210> 14
<211> 559
<212> DNA
<213> Mouse
```

```
<400> 14
gtgctttggt ctggcagagg tggtggcggc gagagcggcc gggaagatgc cagtagcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggt cagcttctag ctttgtactt 180
gctccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg ccacnaggag acgcgccttt gccctggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttgttgga cttcctgtng aagangcttt 480
tgaaggcgtg ttggnacnag gatggcaggc cgacttccac cacaagaatn gttctttccn 540
gggaaggcca ggcttcagg                                             559
```

```
<210> 15
<211> 647
<212> DNA
<213> Mouse
```

```
<400> 15
gtgctttggt ctggcagagg tggtggcggc gagagcggcc gggaagatgc cagtggcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggt cagcttctag ctttgtactt 180
gctccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttgttgga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggn cgactccacc acaagaatgg ttcttcccag 540
gaagccagcc tcaggaancc tggatgtctc cttgaacagg nttatcccct atcagagcct 600
gccccagttt cggcaatccc aatgagcaga gctcgcccgg gttaacg              647
```

```
<210> 16
<211> 663
<212> DNA
```

6

<213> Mouse

<400> 16
```
ggntggtngt cagagcccag ncnagtnggg aaaaagccat tagcngtgat ggcggacaac 60
gncttcagtt tcannnagct gtnggatcag tgcgatancc aggaacncgn ngctccnnga 120
ggaattgcca caccgccatg tacggtcagc ttctagctag tgtnnntant ccnnnncnnc 180
attaatanng cannatntct gtggaagagg ctannacctg cnnnannnnn tncaaatnct 240
naanttnggg gccttnggtc ntttggncaa cagatctggc antangaccc tcccnnggct 300
ctatncnanc atcagnnccc annnntggtn cgnganccng naggccccn tggtaccccn 360
tnggnntgca cnaagggnan gcgccnnnnc ccgggnctct caagcntatg cctncattca 420
tcgcaaagta attgcncagn gtttagggng acttcctntg gnnacgcng ttanagggcg 480
tcntnnaatc ggggtctggc anaggnagtc caccaggggg ttggntctnc cccngtancn 540
agcctnagga ccccctngna agacnccttt naacccggcn tntcgngtta attggaatcc 600
tttcccggnt tccnggctaa agnccccaa tcggggccna gggnntnccc cgnatnacct 660
ngn                                                          663
```


<210> 17
<211> 633
<212> DNA
<213> Mouse

<400> 17
```
gtgctttggt ctggcagagg tggtggcggc gagagcggcc gggaagatgc cagtggcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggt cagcttctag ctttgtactt 180
gctccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttgttgga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggc cgactccacc acaagaatgg ttcttcccag 540
gaagccagcc tcaggaancc tggatgtctc cttgaacagg ttatcccctt atcagagcct 600
gccccagttc cggcaaatcc ccaatgagca gca                         633
```


<210> 18
<211> 552
<212> DNA
<213> Mouse

<400> 18
```
gtgctttngn cngncagang tggtngcnnc nagagggccg ggaagatgcc antngcggtg 60
atggcggaca acgccttcag tttcagaaag ctgttngatc antncgngaa ccnggaactc 120
gaggctcctg gaggaattnc caaaccgcca gtgtacngtc agcttctanc tttgnacttg 180
ctccagaacn acatnaataa tgcaagatat cngtngaaga ggataccacc tgctataaag 240
tctgcaaatn ctggaacttg ggggaatttg gtcanttgga cancgnntcn ggcanagnng 300
tttccctggg atctnnacna ccatcaacgc ccaancagtg gncaganact gtgcagccaa 360
```

```
tcgtgnaagc ccttnngaga ngccaancna agnnnacgcg cctttncccn gngncnntac 420
aagcttnaaa ncctcccatc natcgnnnan ggaatttgac agccgttnnt nggancntcc 480
caggtgggna agaangcnnn ntnaaaaagg nntnntggga aacnaangga ngnccnaggc 540
ccnannctcc nc                                                     552
```

```
<210> 19
<211> 589
<212> DNA
<213> Mouse
```

```
<400> 19
gtgnggtccc agacgggctc aggtaaaact cttgcctatt gngtccctgt ggtccagtct 60
cttcgcgcac tgacatcaaa aaatgcagcg nagtgntggn ccgtatgctt tggtcctagt 120
gnccaccaga gagttggctc tgcaaagctt tgacactgnt cagaaagctg cttaagccat 180
tcacctggnt tgntcctgga gngttgatgg gnggngagna gaggatntcg gaaaaagcta 240
gactccgaaa aggcataaat atccttntct ccactcctgg ccgtctagtg gatcntataa 300
tatccacnaa gaaccttcac tttaaccgaa tanggtggct gattgnggat gaagcagacn 360
ggatcttgga tttgggtttn gtgaaggaca tcncagtgat tctgaatgct gtcaatgctg 420
agngtcagat acggnaagaa tgtcctccng tngnganact canagaaggt gnaanacggc 480
tagttgatnt cagtntgccc antcncgtcn gtntctctgt cctgggcaaa aactggaacn 540
tgnccaatcc taggaaantg nttntgtcna gctcaaaanc attgacant              589
```

```
<210> 20
<211> 565
<212> DNA
<213> Mouse
```

```
<400> 20
actcattgtc ttacacctgg tcctcaggat gagctgctca agggctcttt gcttcaccaa 60
ctcccgagaa aactcccaca ggctgtacct attagcacaa gcttttgggg gtgtgagtgt 120
ggctgaattc tcctcccgct atgggcctgg ccaaaggaag aaaatcttga agcagtttga 180
acaaggaaag atccagctcc ttatcagcac agatgctact gctcgaggca ttgatgtgca 240
gggtgtggag ctggtgatca actacgatgc cccacaatat ctgaggacct atgtgcacag 300
ggtcgggaga acagctcgag ccggggaaac tngacaggga ttcacacttc tcttnnaagt 360
gcaangaaag aagttcttaa aatggtgtaa gaantggggg tgcttgagtg acacaccatg 420
agatcccagg aagttcctgc agccgctggt tgctcgttat gagacagcct tgtctcagtn 480
ngagaaaact gtcaaaggag gagcagaaac tgaaggcagc cctagatgag acangggcct 540
ggagggaaga tcntgcgaaa naaga                                       565
```

```
<210> 21
<211> 578
<212> DNA
<213> Mouse
```

```
<400> 21
```

```
cactggtatt cactctgcca gtcatcatgt tctgcctgga acaggagaag cggttgcctt 60
tctccaagcg agaggggcct tatgggctca tcatctgccc ctcgcgagag ctggctcggc 120
agacccacgg catcctggag tattactgcc gtctgctgca ggaggacagc tcaccctcct 180
gcgctgtgcc ctctgcatcg ggggcatgtc ggtgaaggag cagattgaga ccatccgaca 240
tggtgtgcac atgatggtag ccacacctgg acgcctcatg gatttgctgc agaagaaaat 300
ggtcagccta gacatctgcc gctacctagc cctggatgaa gctgaccgca tgattgacat 360
gggctttgag ggtgacattc ataccatctt ctcctacttc aaggggcaac ggcagactct 420
gctcttcagt gccaccatgc cgaagaagat tcaaaacttt gccaagagtg ccttggtaaa 480
gcctgtcanc atcaatgtgg gtcgtgctgg agcaaccagc cttgatgtca tccaggaggt 540
ggagtatttg aaggggnan ccaaaatggn ntatttct                         578
```

```
<210> 22
<211> 495
<212> DNA
<213> Mouse
```

```
<400> 22
gccatggagt ctgtggagcc cccggtcaaa gacggcatcc tctacnagca gcacgtantg 60
tttggcaaga aatgctggcg caaagtgtgg gctctgctgt atgcgggagg cccatcaggg 120
gtagctcggc tagaaagctg ggacgtgcgt gatggtggcc tgggaccagc atgcgacagg 180
tccacagggc ccagccgtcg aggggaacgc cgggtcatac gcttggctga ctgtgtatct 240
gtcctgcctg cggatggcga gagctgtccc agggacactg gtgccttcct gattaccacc 300
actgagcgaa ccacctgttg gctgcacagc accgccagtc ctgggtggac cccatctgtc 360
agctggcctt cccgggtacc ggagaatttt cctcaggatc aggacaggct gagagtccaa 420
aaaagggctt tgttcccatg gaggaaaact ctatctactc ctcctggcag gaaatgaccg 480
agtttccggt gatcg                                                 495
```

```
<210> 23
<211> 556
<212> DNA
<213> Mouse
```

```
<400> 23
gccntggngt ctgtggngcc cccggtcnan gacggcatcc tctaccagcc gcacgtnnag 60
nntggcaaga natgctggcg canagtgtgg gctctgctgt atgcgggagg cccntcnggg 120
gtagctcggc tagaaagctg ggacgtgcgt gatggtggcc tgggaccngc ntgcgacagg 180
tccacagggc ccagccgtcg aggggaacgc cgggtcatac gcttggctga ctgtgtctct 240
gtcctgcctg cggatggcga gagtgtccca gggacactgg tgccttcctg attnccaccn 300
ctgagcgaan cnacctgttg gctgcncagc accgccagtc ctgggtggac cccatctgtc 360
agctggcctt cccgggtacc gagaatgttc gtcaggatca gggacaggct gagagtccca 420
aancggggtt tgttcccatg gaggaaaact ctatctactc ctcctggcng gaagtgancg 480
agtttccggt tatcgtgcaa aaggaaaaag gccacttccg tggcnagtga anggaccctga 540
ctcctggggc ngggn                                                 556
```

```
<210> 24
```

9

<211> 471
<212> DNA
<213> Mouse

<400> 24
cggacgcgtg ggcggacgcg tggggccatg gagtctgtgg agcccccggt caaagacggc 60
atcctctacc agcagcacgt aaagtttggc aagaaatgct ggcgcaaagt gtgggctctg 120
ctgtatgcgg gaggcccatc aggggtagct cggctagaaa gctgggacgt gcgtgatggt 180
ggcctgggac cagcatgcga caggtccaca gggcccancc gtcganggga acgccgggtc 240
atacgcttgg ctgactgtgt atctgtcctg cctgcggatg gcgaaanctg tcccagggac 300
actggtgcct tcctgattac caccactgan cgaaccacct gttggctgca cagcaccgcc 360
agtcctgggt ggacccatct gtcagctggc cttcccgggt accggaaaat gttcgtcagg 420
atcaggacag gctgaaaatc caaaaagggg ctttgttccc atggaagaaa a   471

<210> 25
<211> 585
<212> DNA
<213> Mouse

<400> 25
cgacttgcac cctacaacgg gctccaggct agaggactcc tgattcacca tggagtccac 60
gctgagcgcg ggcatcataa tggctgaagc actacagaac cggcttcccg ggctagagaa 120
tatgtggctc tgggtcacct ttctgggcga tcctaagaat cttttttcagt tctgcttccc 180
cgcggcctac tacgcctccc gccgcctggg catctccgtg ctctggatca ccttcattgc 240
tgagtggctc aaccttgtct tcaagtggtt tctgtttgga dacaggccct tttggtgggt 300
gcatgaatcc gggtactcca cccagactcc aatccagatt caccagttcc cttcttcttg 360
tgagactggt ccaggcagcc cctccggcca ctgcatgatc acaggcgcan tctttggcct 420
gtaatgacgg ccatttcttc tcaggtggct tctcggtccc gcagcccctg ggtganggtg 480
attcctgggc ctggcttaat tggaaccttc ctaatttggc agtcgggcta atctcgggtc 540
ttcctcttaa gcncattttc ccttaaccaa gtgnttgggg gggcn   585

<210> 26
<211> 558
<212> DNA
<213> Mouse

<400> 26
cgacttgcac cctacaacgg gctccaggct agaggactcc tgattcacca tggagtccac 60
gctgagcgcg ggcatcataa tggctgaagc actacagaac cggcttcccg ggctagagaa 120
tatgtggctc tgggtcacct ttctgggcga tcctaagaat cttttccgcg gcctactacg 180
cctcccgccg cctgggcatc tccgtgctct ggatcacctt cattgctgag tggctcaacc 240
ttgtcttcaa gtggtttctg tttggagaca ggcccttttg gtgggtgcat gaatccgggt 300
actccaccca gactccaatc cagattcacc agttcccttc ttcttgtgag actggtccag 360
gcagcccctc cggccactgc atgatcacag gcgcantctt tggcctgtaa tgacggccat 420
ttcttctcag gtggcttctc ggtcccgcag cccctgggtg anggtgattc ctggcctggc 480
ttattgtacc ttcctattgg cagtcgggct atctcgggtc tttcctctta gcacatttcc 540

cctcaacaag tgttnggn   558

<210> 27
<211> 612
<212> DNA
<213> Mouse

<400> 27
gaggnttccc ctgaanaatg gagaagnngt ccgccatgta tacngtntgc atgccatana 60
ccatgtcctc annaccaatn ctcaggtgnn gggtancaan agtaggngcc ggagtnanaa 120
acttgggnnn nnngnagntg ntgantncan ggnccancgg ctcaccaggn cnaangtact 180
tatagtngtg cccttccggg aagntnccct ncgggtggtc cagctctnca tcagcctcct 240
tgaaggggan anaataagnn aatccntngt aaccnntana naacggtntc ncgggganta 300
nngatctnaa cntntagagn gacctcccaa cntgangnng nctnaggaan ntnannctgt 360
gnacgtgggc aatnatgatg ngcanttcag ganaggagtn gnaatacntc atgnagcatc 420
ctgntctagg gcncgtttta ctcctcnnnc atcctcagtn cctgccnctt ngcntgaaga 480
ccatcactag tgctgaangc cagngtaaaa gnntttgacn tctntcttcg atgagctgct 540
ccnatgtcag gtggatnaan tgntcgcaat ngaactntct gattgcgagn ctgactggcc 600
tgattttggg ag   612

<210> 28
<211> 526
<212> DNA
<213> Mouse

<400> 28
cagaaaatat gcagttacat ttatttatat atttggcaag aaatctttc tgagtgatca 60
atgcatttca atttatgaaa aataatggtt aggggcact gtttattata gataatttta 120
aggtatataa ctgttttcaa ggacggccac ttccacctag cggtcaagcc gagaggactg 180
catctaaatt gtgactgtgg cagatgggtc ttcacagaaa ccatgtcttt attcaaactt 240
cacaaggcta tatttgaact gttaactagg catttcaaaa caggagatac cttcaacaga 300
ctcttttcca agagcaggtt ttactgtttt tttgatgtaa ttttaagaca tttagcaaac 360
atgcatttct ttatatgata catttctttc acaaacaat ttaaaagtaa gccaagtgct 420
gcctgctctg cgagtaggaa ctgcatcaga atcgtgtatc ttgctgtaca atgcctgtga 480
tagtgaagan ggntcttctt agtgtatgct gggtacctaa ctctgg   526

<210> 29
<211> 551
<212> DNA
<213> Mouse

<400> 29
nanaaaatan gcagttanat ttntttatat atttnncaag agaatcttnn cngacnnatc 60
aatgcantnn antttatgaa aantaatgnn nagnnggccc tgtntatgan agatnattt 120
aagggnagat aactgtnntc anngnacngc cactntccan ctagnggtcn anccganagg 180

```
nctgcatctn ngtngngact gtgggcangt nggtctncac nnaaannang tctnatannc 240
aaacttcaga aggctatatt nganctgtta nntnggnctt tcaaaacagg agnnaccttc 300
nancncctnt ttnccaagnn naggtntnac tggttttgtt gaggnaantt gangacntnt 360
angcnnacat gcattncntt anaaggatac catgagcttn ncacacaanc aattnaanga 420
ntgaaancna angngcngac ntngagnnng nngagtnang ganaccntga nttaaggaca 480
ngccgnngtn cnccnnngnn nggnacccaa tggcccgtng cntnaagnga ggantgggta 540
nctgcnnnan n                                                     551
```

```
<210> 30
<211> 534
<212> DNA
<213> Mouse
```

```
<400> 30
ctcctccagg gccaccaagc acctctgaag agccatgttc caagctgccg gagccgccca 60
ggccaccccc tctcatgaag ccaaaggcag cagtggcagc agcacggtac agcggtctaa 120
gtcctttagc ttgcgggctc aggtgaagga gacctgtgca gcctgccaga agactgtgta 180
cccgatggag cggctggtgg cagacaagct cattttccac aactcttgtt tctgttgcaa 240
acactgccac accaaactca gcctgggcag ttatgctgca atgcacggtg aattttactg 300
cagacctcac tttcagcagc tgtttaagag taaaggcaac tacgatgaag ggtttggtcg 360
taaacagcac aaggagctct gggcccacaa ggaggtggac tcaggcacca agacggcctg 420
agaccccttt aacacccatt ccctcccagc acatggcctc ccgctgggca gtggaaagga 480
gattaacccg gggggcgcgg ggtgggagan gatgaggctc cctcacacag gttt        534
```

```
<210> 31
<211> 539
<212> DNA
<213> Mouse
```

```
<400> 31
atctcctcca gggccaccaa gcacctctga gagccatgt tccaagctgc cggagccgcc 60
caggccaccc cctctcatga agccaaaggc agcagtggca gcagcacggt acagcggtct 120
aagtccttta gcttgcgggc tcaggtgaag gagacctgtg cagcctgcca gaagactgtg 180
tacccgatgg agcggctggt ggcagacaag ctcattttcc acaactcttg tttctgttgc 240
aaacactgcc acaccaaact cagcctgggc agttatgctg caatgcacg tgaatttac 300
tgcagacctc actttcagca gctgtttaag agtaaaggca actacgatga agggtttggt 360
cgtaaacagc acaaggagct ctgggcccac aaggaggtgg actcaggcac caagacggcc 420
tgagacccct ttaacaccca ttccctccca gcacatggcc tccgctgggg cagtggaaag 480
gagattaacc cggggggcgcg ggttggaaag gatgaggctn ccctcacaca ggtttcagg 539
```

```
<210> 32
<211> 529
<212> DNA
<213> Mouse
```

<400> 32

```
atctcctcca gggccaccaa gcacctctga agagccatgt tccaagctgc cggagccgcc 60
caggccaccc cctctcatga agccaaaggc agcagtggca gcagcacggt acagcggtct 120
aagtcccttta gcttgcgggc tcaggtgaag gagacctgtg cagcctgcca gaagactgtg 180
tacccgatgg agcggctggt ggcagacaag ctcattttcc acaactcttg tttctgttgc 240
aaacactgcc acaccaaact cagcctgggc agttatgctg caatgcacgg tgaattttac 300
tgcagacctc actttcagca gctgtttaag agtaaaggca actacgatga agggtttggt 360
cgtaaacagc acaaggagct ctgggcccac aaggaggtgg actcaggcac caagacggcc 420
tgagacccct ttaacaccca ttccctccca gcacatggcc tcccgctggg cagtggaaag 480
gagattaacc cggggggcgcg gggtgggaga ggatgaggct cctcacaca        529
```


<210> 33
<211> 540
<212> DNA
<213> Mouse

<400> 33

```
ttcgcatgga ccctgcagcc tacatcttcc tccagaaccc tccaggtctg cctgctattg 60
cgctctgctg gtttgtgggc tgcatttgtg ggagcaaatt ggtcatcgac tggcacaact 120
atggctactc catcatgggc ttggtccatg gccccgcca ccccattgtg ctgctggcca 180
aatggtatga gaagttcttc gggcgcctgt cccacctgaa cctgtgtgtg accaatgcta 240
tgcgggagga cctggcagag aactggtgtg tcagggctgt gacgctctac gacaagccag 300
catctttctt taaggagaca cccctggacc tgcagcatga actctttatg aagctgagcc 360
acacgtantc tcctttccag agctgctnag-atccctcana tcctgacaca nagaagtcgg 420
gccttcaact gagagggatt ttcanagngg ggttntgagg cgtctgaatg gggcggncaa 480
actggtcgtt annaggaaaa gctggaaagg tatgcttccc ctggnaactg ggggtgtgtg 540
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<210> 34
<211> 575
<212> DNA
<213> Mouse

<400> 34

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catcattgtg ttattgctgc agaaggcttg gcggggcacc ctggctaggt ggcactgccg 60
gcgactaagg gccatctaca ccatcatgcg ctggttccgg aggcacaagg tgcgtgctca 120
cctnggttcc aggctgcacg gcagccccca ctctatggcc gtgaccttgt gtggcccaca 180
cctcctgctg tgctgcagcc cttccaggac acttgccgtg ttctcttcag caggtggcgg 240
gcacggcagt tagtgaagaa catccctcct tcagacatga tccagatcaa ggccaaggtg 300
gctgctatgg gggccttgca aggattgcgg caggactggg gttgccagcg ggcctgggcc 360
cgagactacc tgtcctctga cactgacaac cccacagctt cccatctgtt tgctgagcaa 420
ctaaaggcac ttcgggagaa agatggcttt ggctctgtgt ttttctccan gccatgttgc 480
ggcnaaggtg aaatngcttt ccgccaagaa nccgggaacc ggggcccttt ctgncntcac 540
cagattcggg taatctngta anaancttgg nagcc          575
```


<210> 35

<211> 588
<212> DNA
<213> Mouse

<400> 35
gactcatgaa ggtgttcgtc tggcccgttg cctgccgagg gcagggctgc gctcgcccag 60
gccgcagact gtgaggtgga acagtggaat tcggatgacc ccatccccag aaaggatctg 120
gagcaaggtg tggtgggggc ccatggcttg ctctgccgcc tctctgaccg tgtggacaag 180
aaacttctgg atgccgcagg agccaacctc agagtcatca gcaccttgtc tgtgggggtc 240
gaccacttgg ctttggatga aatcaagaag cgcgggatcc gggtgggcta cacgccaggt 300
gtcctgacag atgccactgc agaactcgcc gtctcccctc ctcctcancc acctgccgcc 360
ggttgccgga ggccatagag gaagtgaaga acggcgctgg aacncctgga gcccattatg 420
gatgtncggc tacggactct cgnagancac tgttnggcat tgttgggctt gggcgatagg 480
tcaggcaatn cnctcgaaga ctgaaaccat tcgggtgccc agaaatttct tnanaanggg 540
gngcccaccn aagggcctna aggaaaacac ccnaantttn aggcanat   588

<210> 36
<211> 534
<212> DNA
<213> Mouse

<400> 36
cgactcatga aggtgttcgt ctggcccgtt gcctgccgag ggcagggctg cgctcgccca 60
ggccgcagac tgtgaggtgg aacagtggaa ttcggatgac cccatcccca gaaaggatct 120
ggagcaaggt gtggtggggg cccatggctt gctctgccgc ctctctgacc gtgtggacaa 180
gaaacttctg gatgccgcag gagccaacct cagagtcatc agcaccttgt ctgtgggggt 240
cgaccacttg gctttggatg aaatcaagaa gcgcgggatc cgggtgggct acacgccagg 300
tgtcctgaca gatgccactg cagaactcgc cgtctccctc ctcctcacca cctgccgccg 360
gttgccggag gcattagagg aagtgaagaa cggcggctgg agctcctgga gcccattatg 420
gatgtgcggc tacggactct cgcagagcac tgttggcatt gtgggctgg ggcgcatagg 480
tcaggccatc gctcgacgac tgaaaccatt cggtgtccag agatttcttt acac   534

<210> 37
<211> 524
<212> DNA
<213> Mouse

<400> 37
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ggccgcagac tgtgaggtgg aacagtggaa ttcggatgac cccatcccca gaaaggatct 120
ggagcaaggt gtggtggggg cccatggctt gctctgccgc ctctctgacc gtgtggacaa 180
gaaacttctg gatgccgcag agccaacctc agagtcatca gcaccttgtc tgtgggggtc 240
gaccacttgg ctttggatga aatcaagaag cgcgggatcc gggtgggcta cacgccaggt 300
gtcctgacag atgccactgc agaactcgcc gtctccctcc tcctcaccac ctgccgccgg 360
ttgccggagg ccatagagga agtgaagaac ggcggctgga gctcctggag cccattatg 420
atgtgcggct acggactctc gcagagcact gttggcattg tggggctggg gcgcataggt 480

                                   14

caggccatcg ctcgacgact gaaaccattc ggtgtccaga gatt   524

<210> 38
<211> 538
<212> DNA
<213> Mouse

<400> 38
ggagttgatc tctttcgtag ttcccaccca gagcgacaaa gttttgttgg tgtgggatct 60
gagcactggg cccccagnng aagccttaag tcattctctg ttcacagtgt tctctcagtt 120
tggccttctg tattcagtnc gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
cgccatcatc aagttttact cctcgcggga cgcacagaga gcccagaagg cttgcgatgg 240
gaaacccctt tttcagacat caccagtgaa ggttcgtctt ggaaccagac acaaggcact 300
gcagcatcag gnctttgctc taaacagctc acgatgccag gaactngcca attactactt 360
tggcttcagt ggatggtcga aaaggatcat caagctgcag gagctctccg gactggagga 420
tgcagtctcg tgtgccatgn agaaggggag ccccagttct ctgcgctgta naagtgtgct 480
gcccccctaag gatgcangag cnctggggnt tgnatctctg aggagctntg cgcantgg   538

<210> 39
<211> 527
<212> DNA
<213> Mouse

<400> 39
ggagttgatc tctttcgtag ttcccaccca gagcgacaaa gttttgttgg tgtgggatct 60
gagcactggg cccccagccg aagccttaag tcattctctg ttcacagtgt tctctcagtt 120
tggccttctg tattcagtcc gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
cgccatcatc aagttttact cctcgcggga cgcacagaga gcccagaagg cttgcgatgg 240
gaaacccctt tttcagacat caccagtgaa ggttcgtctt ggaaccagac acaaggcact 300
gcagcatcag gcctttgctc taaacagctc acgatgccag gaactggcca attactactt 360
tggcttcagt ggatggtcga aaaggatcat caagctgcag gagcnctccg gactggagga 420
tgcagctctc gctggtgccc atgcanaagg ggngccccca gtttcctttg gcggctgtan 480
aggtngtggn tgcccccnn acgggatttc angaggcccc tggggggg   527

<210> 40
<211> 580
<212> DNA
<213> Mouse

<400> 40
ggagttgatc tctttcgtag ttcccaccca gagcgacaaa gttttgttgg tgtgggatct 60
gagcactggg cccccagccg aagccttaag tcattctctg ttcacagtgt tctctcagtt 120
tggccttctg tattcagtcc gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
cgccatcatc aagttttact cctcgcggga cgcacagaga gcccagaagg cttgcnatgg 240
gaaacccctt tttcagacat caccagtgaa ggttcgtctt ggaaccagac acaaggcact 300

```
gcagcatcag gcctttgctc taaacagctc acgatgccag gaatggccaa ttactacttt 360
ggcttcagtg gatggtcgaa aaggatcatc caagctgcag ggagctctcc ngactggagg 420
gtgcagctct cgctgtgccc atgccngaan ggggnncccc aatttctctg gcgctnntaa 480
aantggtgct gccccctta nggatgcaag gaacntgggg gtttggcanc tcttgaaggg 540
cttttgggcc caattggnan gnaagggcaa tctcgttttt                       580
```

```
<210> 41
<211> 547
<212> DNA
<213> Mouse
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```
<400> 41
nggacntgng ctatttggct ttggatgcag taaatactat gaaaagattc cagatcagat 60
gttcttccat accgattatc ggcccctcat cagagatgcc aataactatg tattagatga 120
acaaactcaa caagctcctc acctcatgcc tccccattc ttggtggatg tcgatggaaa 180
tcctcatcct acaaaatttc aacggctggt accaggacgg gaaaactgta aagatgaaca 240
acttattcca cagttaggat atgtggctaa tggtgacggt gaggtggtag aacaggtaat 300
tgggcagcaa_accaatgacc aagaagaaag cattcttgat ggaataatca gggagttaca 360
gagagaacaa gatctcagat taattaatga aggagatgtt ccacattttc caattaatag 420
atcatattct gttaatggtg ctctgagtag tcccaatatg gacatacctt tcttccccaa 480
atatgggcct tcgggcgtag tgggccnaat tgaaaggtgt ttcggcagat gncccaacaa 540
tgctncc                                                          547
```

```
<210> 42
<211> 542
<212> DNA
<213> Mouse
```

```
<400> 42
gctatttggc tttggatgca gtaaatacta tgaaaagatt ccagatcaga tgttcttcca 60
tnncgattat cggcccctca tcagagatgc caataactat gtattagatg aacaaactca 120
acaagctcct cacctcatgc ctcccccatt cttggtggat gtcgatggaa atcctcatcc 180
tacaaaattt caacggctgg taccaggacg ggaaaactgt aaagatgaac aacttattcc 240
acagttagga tatgtggcta atggtgacgg tgaggtggta aacaggtaa ttgggcagca 300
aaccaatgac caagaagaaa gcattcttga tggaataatc agggagttac agagagaaca 360
agatctcaga ttaattaatg aaggagatgt tccacatttt ccaattaata gatcatattc 420
cggntaatgg tgcccctgag tagtcccaat atgggacata cccttctttc ccccaaatat 480
tgggccntcg gcgtaatggg cccaaatttt aangnggttc ggcaaatggc cccaanattg 540
cn                                                               542
```

```
<210> 43
<211> 543
<212> DNA
<213> Mouse
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16

<400> 43
cggaaaacat gtcgaggtgc accgggaacc ctgacgtcaa aaagagatgt cctcagcctg 60
ctgaacttgt cccctcggca cggcaaggag gagggtgggg cagacaggct ggaactgaag 120
gagctgtctg tgcagcggca tgacgaggtg ccacccaaag tccccaccaa cggccactgg 180
tgcacggata cagcaacact gaccacggcc ggtggccgca gcaccacagc tgccccgcgc 240
cctctgagac ttcccttggc caacggttac aagttcctgt ccccaggaag gctcttccct 300
tcctccaaat gttaaagcag cttcttgccc ccaactcagt gcacactcca gccagagtcc 360
cggggcccct gatgcagcgt ggtcacccac ccacatagcc actgntacca tccctccccg 420
gacaggcggg ctccctgggc aaggtcactg ccacgccaaa tgccactgta ctcacgggta 480
aaccctgggc cagattcacc caaagcaggt ctcacgtggg aatggcagcg cttctctgcc 540
ggn   543

<210> 44
<211> 717
<212> DNA
<213> Mouse

<400> 44
gcnatttggc tntggannen gtaaatacta tgaaaanatt ccagatcaga tgttcttcnn 60
naccgattat cggcccctca tcagagatgc caataactat gtattagatg aacaaactca 120
acaagctcct cacctcatgc ctcccccatt cttggtggat gtcgatggaa atcctcatcc 180
tacaaaattt caacggctgg taccaggang ggaaaactgt aaagatgaac aacttattcc 240
acagttagga tatgtngcta atggtgacgg tgaggtggta aaacaggtaa ttgggcagca 300
aaccaatgac cnaagaagaa ngccttcttg gnnggggaana atcnggggna gtttcccggg 360
aagnaccaaa gnnnectengg tttaaattaa atgnaanggg gggatgnttc cccacaattt 420
ttnccnantt tanngttagg anttccataa ntttncnggg ggnnaaaaat ngggnnggcc 480
cnccccggg gggtaagggt cccccaaaaa tttattnggg gcanantaan cccntttcct 540
ttntnccccc ccaaaaattt antttggggg ccctttttcgg gggnggnaag aggggncccc 600
caaanttttg aaagggggg tttccgggnc caaganttnc accaaaacca atnggccccc 660
ccccgggggc ccaagattgg ccccttgnaa aagggccccc cccangggggn cnggggn   717

<210> 45
<211> 514
<212> DNA
<213> Mouse

<400> 45
gctatttggc tttggatgca gtaaatacta tgaaaagatt ccagatcaga tgttcttcca 60
taccgattat cggcccctca tcagagatgc caataactat gtattagatg aacaaactca 120
acaagctcct cacctcatgc ctcccccatt cttggtggat gtcgatggaa atcctcatcc 180
tacaaaattt caacggctgg taccaggacg ggaaaactgt aaagatgaac aacttattcc 240
acagttagga tatgtggcta atggtgacgg tgaggtggta gaacaggtaa ttgggcagca 300
aaccaatgac caagaagaaa gcattcttga tggaataatc agggagttac agagagaaca 360
agatctcaga ttaattnatg aaggagatgt ttccacattt tccaattaat agntcatatt 420
ctgttaatgg tgctctgagt agtcccaata tgggnatacc ttctttcccc aatattggcc 480
tcggggtagt ggccnaattn aaagggttcg gcna   514

<210> 46
<211> 532
<212> DNA
<213> Mouse

<400> 46
cgcnatttgg ctttggatgc agtaaatact atgaaaagat tccagatcag atgttcttcc 60
atnaccgntt atcggcccct catcagagat gccaataact atgtattaga tgaacaaact 120
caacaagctc ctcacctcat gcctccccca ttcttggtgg atgtcgatng aaatcctnat 180
cctacaaaat tncnncggct ggtaccagga cgggaaaact gtaaagatga acaacttatt 240
ccacagttag gatatgtggc taatggtgac ggtgaggtgg tagaacaggt aattgggcag 300
caaaccaatg accaagaaga aagcattctt gatggnntaa ncagggngtt acnnngaggg 360
caagntctca gatttattaa tgtaggagnt gttccacatt ttccaattaa tagatcatat 420
ttctgttaat ggtgctctga gtagtccnaa tatgggccat accttcttcc ccaaatattg 480
ggcttcggcg tagtgggccc aaattgnagg gtgttccncn nntgcaaaaa ca   532

<210> 47
<211> 648
<212> DNA
<213> Mouse

<400> 47
gtgggacaca gctggacaag agaggtacca cagcctcaca cgacagctgc ttcgcaaggc 60
agagggggtg gtgctcatgt atgacgtcac ctcccaagag agcttcaccc acgtgcgtta 120
ctggctcgac tgtctgcagg atgcaggtgt agagggggtg gccatggtcc tgctgggaaa 180
caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240
ggagctgggg gtgtccttcg gtgagtgcag cgcggccctg ggtcacaata tcctggagcc 300
gatgatgaac ctggctcggt cacttaagat gcaagaagac cgcctgaaag cctcattggc 360
agaagtgaca cacccacaat caaccaagag agctggctgc tgccactgat caccagcacg 420
gtccaatccc agactgactc ttccggtggc ttccattcgg cttcttagac acagctggga 480
catagaaacc cagcaggggc caatgtcacc tctgctccac tgagcaaaca taccaggggt 540
gaacggcagg acaaattcta gattaaactc cacacaagca aagtgtccca agtctttcat 600
tcaccccagg tgaagagatg gtagggtatt tctagttcan ttctggga   648

<210> 48
<211> 654
<212> DNA
<213> Mouse

<400> 48
gtgggacaca gctggacaag agaggtacca cagcctcaca cgacagctgc ttcgcaaggc 60
agagggggtg gtgctcatgt atgacgtcac ctcccaagag agcttcaccc acgtgcgtta 120
ctggctcgac tgnctgcagg atgcaggtgt agagggggtg gccatggtcc tgctgggaaa 180
caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240

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ggagctgggg gtgtccttcg gtgagtgcag cgcggccctg ggtcacaata tcctggagcc 300
gatgatgaac ctggctcggt cacttaagat gcaagaagac cgcctgaaag cctcattggc 360
agaagtgaca cacccacaat caaccaagag agctggctgc tgccactgat caccagcacg 420
gtcaatccca gactgactct tccggtggct tccattcggc ttcttagaca cagctgggga 480
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ttaacggcag acaaatctag atttaaactc cacacaagcn aaatgttccc caagtctttc 600
attcancccc aggtgaagag atggtagggt attcnagttt catttctgtg atgg        654
```


<210> 49
<211> 639
<212> DNA
<213> Mouse

<400> 49

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gtgggacaca gctggacaag agaggtacca cagcctcaca cgacagctgc ttcgcaaggc 60
agaggggggtg gtgctcatgt atgacgtcac ctcccaagag agcttcaccc acgtgcgtta 120
ctggctcgac ngtctgcagg atgcaggtgt agaggggggtg gccatggtcc tgctgggaaa 180
caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240
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gatgatgaac ctggctcggt cacttaagat gcaagaagac cgcctgaaag cctcattggc 360
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gtccaatccc agactgactc ttccggtggc ttccattcgg cttcttagac acagctggga 480
catagaaacc cagcagggc caatgtcacc tctgctccac tgagcaaaca taccaggggt 540
gaaacggcag acaaatcta gattaaactt ccacacaagc aaagtgtccc ccaagtcttt 600
cattcancccc cagggtgaaa gagattggta aggtatttt                       639
```


<210> 50
<211> 575
<212> DNA
<213> Mouse

<400> 50

```
gtgggacaca gctggacaag agaggtacca cagcctcaca cgananntgn ntcgcaaggc 60
agagggggtg gtgctcatgt atnangtcac ctcccaagan agcttnaccc angtgcgtna 120
ctggctcgac tntctgcagg atgcaggtgt anaggggggng gccatggncc tgctgggaaa 180
caagatggac tgtgangang nnaggcnngn acccactaga agctgnncag aaggctcgcc 240
caggagctgg gggtgtcctt cggtgagtgc agcgcggncc tgggtcacaa tatcctggag 300
ccgatgatca acctggctcg gtcacttaag atgcaagaag accgcctgaa agcctcattg 360
gcannagtga cacacncana atnaaccaag anatcnggct gctgccactg atcaccagcn 420
cggtccnatc ccagantgan tcttccgggt ggcttccatt cgggcttctt ngacacagnt 480
gggacatagn ngacccagna tggggccnat ttnaccttct ggcnccannn gagcaaacat 540
accagggngg aacggcaggg accaaattcn agatt                             575
```


<210> 51
<211> 566
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<212> DNA
<213> Mouse

<400> 51
gtgggacaca gctggacaag agaggtacca cagcctcaca cgacagctgc ttcgcaaggc 60
agagggggtg gtgctcatgt atgacgtcac ctcccaagag agcttcaccc acgtgcgtta 120
ctggctcgac tgtctgcagg atgcaggtgt agaggggtg gccatggtcc tgctgggaaa 180
caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240
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gatgatgaac ctggctcggt cacttaagat gcaagaagac cgcctgaaag cctcattggc 360
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gtccaatccc agactgactc ttccggtggc ttccattcgg cttcttagac acagctggga 480
catagaaacc cagcaggggg ccaatgtcac ctctgcttcc actgagcaaa cataccaggg 540
ggtgaacggc aggncaaatc tnnatt                                      566


<210> 52
<211> 543
<212> DNA
<213> Mouse

<400> 52
ctggtttaga gtgttcatga gaagaaattt acatgggaga atctgatggg agggagtatg 60
gaaatgcttt agatagagaa ttcatatgtg aaattttcaa aaaatgttta gttaataata 120
atcagggagg ctggttggta aagcattctc ttgcaagcac aagaaactga gttgagccac 180
cagaactcaa aaaaagtcag gtgtgggtga tgcgctttcc attcccagta ctgaggaggc 240
tgaggcaggc tgatccctgg cgctcgctgg ccagtcagtt tagtgtcctt agtgaatctc 300
aggccagtga aacaatctgt tcaaaaacaa aaagaggatg tcatctgagg aatggaaacc 360
aaggttatct tctggcctcc acatgcgcat gaacacgtgg acatatatgt gtacctacac 420
gtatgaacac acatacacac aaacacaaaa aagatataag agacacaaag ttgctcctct 480
ttgtcatata agagcattaa aaaaggtggc tgtgtagaag ccaggagccc acacaccaga 540
tct                                                             543


<210> 53
<211> 543
<212> DNA
<213> Mouse

<400> 53
ggaacatccc ccaggtcagc aaggtgaagt cagtccgtct ggatgcctgg gatgaggccc 60
aagttgagtt catggcatct catgggaacg aggctgccag agccacattt gagtccaaag 120
taccgccctt ctactaccgg cccacgttct ccgactgcca actcctacgt gagcagtgga 180
tccgtgccaa gtatgagagg caagaattcg ttcatgtgga gaagcaggaa ccatactcta 240
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ggaagtttgt gctgacagaa cgagagggtg ccctgaaata cttcaacaaa aacgatgtaa 360
gcccgccatg gagccaaggg tgaccttccc acgnggggnc ctggcatcta ctgggtctgc 420
ngggctgggg attancccctt ctactgtgtg tnggngcctg ctttcagcnc catccccatc 480

agtcctttca gagagcagcc cttangangg atnccctctg ggggaaaaaa ccanaaatgn 540
ata                                                                  543


<210> 54
<211> 540
<212> DNA
<213> Mouse

<400> 54
tnntgcgaga ngccaccgca gaaggacaaa atggcagtgg cagcccagcc ccagccccag 60
ancagcaatg tgccccattt ctccaccatg ttcttctatg ctcaaatac ctaaagcaac 120
ccaacctgag gtggatcttc ctcaaagttc tggaaacttc aaaaaagaag agctggctac 180
acgcctgtcc caggccattg caggtgggga tgagaaagca gcggcccaag tggcagcagt 240
cctggcgcan atcatgtggc tctcaatgtc cagctcatgg aggcctggtt cccaccaggt 300
cccataaggc tacaagtcac agttgaagac gccacatcgg ttttgtcctc ttcatcgtct 360
gcccatgtct cactgaagat ccacccacat tgctccattg cagcccttca ggatcaggtg 420
ttctcagagt tcggtttttcc ancagctgtg agcgctgggt cattgggcgg tgctgtgtat 480
gcctgaacga agccttgttc ctatggggtc tctcaagatg ggagacctgc ttttctttaa 540


<210> 55
<211> 546
<212> DNA
<213> Mouse

<400> 55
tcagtagcga gatgccaccg cagaaggaca aaatggcagt ggcagcccag ccncagcccc 60
agccccagca atgtgcccca tttctccacc atgttcttct atggctcaaa tacctaaagc 120
aacccaacct gaggtggatc ttcctcaaag ttctggaaac ttcaaaaaag aagagctggc 180
tacacgcctg tcccaggcca ttgcaggtgg ggatgagaaa gcagcggccc aagtggcagc 240
agtcctggcg canatncatg tggctctcaa tgtccagctc atggaggcct ggttcccacc 300
aggtcccata aggctacaag tcacagttga agacgccaca tcggtttttgt cctcttcatc 360
gtctgcccat gtctcactga agatccaccc acattgctcc attgcagcnc ntcaggatca 420
aggtgttctc agagttcggt ttcccaccag ctgtgcagcg ctgggtcatt gggcggngct 480
gtgtatgcct gaaccgaagc ttgcttccta tggggntctc ctcaagatgg agnnccngcn 540
ttttnt                                                              546


<210> 56
<211> 614
<212> DNA
<213> Mouse

<400> 56
tngtgcgaga tgccaccgca gaaggacaaa atggcagtgg cagcccagcc ccagccccag 60
cgccagcaat gtgccccatt tctccaccat gttcttctat ggctcaaata cctaaagcaa 120
cccaacctga ggtggatctt cctcaaagtt ctggaaactt caaaaaagaa gagctggcta 180

21

```
cacgcctgtc ccaggccatt gcaggtgggg atgagaaagc agcggcccaa gtggcagcag 240
tcctggcgca natcatgtgg ctctcaatgt ccagctcatg gaggcctggt tcccaccagg 300
tcccataagg ctacaagtca cagttgaaga cgccacatcg gttttgtcct cttcatcgtc 360
tgcccatgtc tcactgaaga tccacccaca ttgctccatt gcagcccttc aggatcaggt 420
gttctcagag ttcggtttcc caccagctgt gcagcgctgg gtcattgggc ggtgcctgtg 480
tatgncctga acgaagcctt gcttcctatg gggtctctca agatggagaa cctgcttttc 540
tttacttgcn ctggccccca gaagaagttt caggacaaag ctttcaaaat tccaagatgg 600
accgggaaat tagg                                                   614
```

```
<210> 57
<211> 520
<212> DNA
<213> Mouse
```

```
<400> 57
tntgtngcga gatgccaccg cagaaggaca aaatggcagt ggcagcccag ccccagcccc 60
anccccagca atgtgcccca tttctccacc atgttcttct atggctcaaa tacctaaagc 120
aacccaacct gaggtggatc ttcctcaaag ttctggaatc ttcaaaaaag aagagctggc 180
tacacgcctg tcccaggcca ttgcaggtgg ggatgagaaa gcagcggccc aagtggcagc 240
agtcctggcg canatcatgt ggctctcaat gtccagctca tggaggcctg gttcccacca 300
ggtcccataa ggctacaagt cacagttgaa gacgccacat cggttttgtc ctcttcatcg 360
tctgcccatg tctcactgaa gatccaccca cattgctcca ttgcagccct tcaggatcag 420
gtgttctcag agttcggttt cccaccagct gtgcagcgct gggtcattgg gcggtgctgt 480
gtatgcctga acgaagcctt gcttnctatg ggggttctca                      520
```

```
<210> 58
<211> 529
<212> DNA
<213> Mouse
```

```
<400> 58
tgagtgcgng nngccnccgc ngcnggccac nntggcagtg gcagcccggc cccagccccn 60
gcccncgcnn tgtgccccnt ttctccnccn tgttcttctn tggctcanat ccctanagcn 120
gcccngcctg cggtggttct tcctccangt tctggncact tcnnnnangn ngngctggct 180
ccncgcctgt cccnggccnt tgcnggtggg ggtgngcnag cngcggccca ggtggctgca 240
gtcctggcgc ngatcctgtg tgctctcaatg tccngctcct ggnggcctgg ttcccccccng 300
gtcccnttag ggcttacnng tcncngttgg ngncgccacg tcggtttttng ncctcttcgt 360
cgttngccca tgtctcactg ngggtccnnc cccancnttg gctcccgttn gnggcccttt 420
ccaggggtcc gggngttcnc cnggngttng gggtttnccc ccacaaanan gnnncnctgg 480
gggncctttg ggaaggntcc nnattnanan anncnttgtn acaaagngc             529
```

```
<210> 59
<211> 400
<212> DNA
<213> Mouse
```

<400> 59

```
gtttgagggc tccctcaata tggacctgaa tgagatcagc atgaacttgg ttcctttccc 60
gaagcttcat tatctcgtgt caagcctgac acctctgtac acgctggccg atgttaacat 120
tccccccga agactggatc agatgttttc agacgccttt agtaaggatc accagctcat 180
ccaagcagac cccagacata gcctctacct tgcctgtgcc ctcatcgtta gaggaaacgt 240
acagatttcc gatcttcgca gaaatattga aagattaaaa cctgctctgc agtttgtctc 300
ctggaatcaa gaangctgga anacacctgt gttctgtacc gcctgtgggc cactcgcatt 360
ctctgttact ttagcaaata acacgtgtgt gaacctacct                        400
```

<210> 60
<211> 293
<212> DNA
<213> Mouse

<400> 60

```
aagaatttaa ggtagaaaga gtccctctaa ctgattattg cttctttatt ttcctgactc 60
ttntggtcta ggagaaatat gacccagaat tccataactg ctcctgtgtt tttctccttc 120
ccagctcacg gatgattgac atccagacca agatgactga gcgagcgctg gagctcctct 180
gtttaccaga gggtcagcct tcttacctgt tagacattgg atgccgcctt ggaccgagat 240
acagagggg acctgctgct aggggacatg ggccagggcg ttcccccccc ttt          293
```

<210> 61
<211> 645
<212> DNA
<213> Mouse

<400> 61

```
taagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
cttntggtct aggagaaata tgacccagaa ttccataact gctcctgtgt ttttctcctt 120
cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgcct tggaccgaga 240
tacagagggg gacctgctgc tagggggacat gggccagggc gtccctttca gaccgggctc 300
ttttgatggc tgcatcagca tctctgctgt gcagtggctc tgcaacgcca acaagaagtc 360
ggacgtccct gccaggcgcc tgtactgctt cttttcttcc ttgtactctg cccttgtccg 420
tggggcccga gctgtcctgc agctgtaccc tgagaactcg gagcaggtga gcagctggag 480
ctgatcacaa cccaggccac gagggcaggc ttcactggcg gcgtggtggt agacttcccc 540
aacagtgcca aagcaaagaa gttctanctc tgtctgtttt ctgggcttcc anctccctgc 600
caaaagggct gactgaaagt caggatgcag accaaggctc cgaat                  645
```

<210> 62
<211> 602
<212> DNA
<213> Mouse

<400> 62

```
aagaatttaa ggtagaaaga gtccctctaa ctgattattg cttctttatt ttcctgactc 60
tnttggtcta ggagaaatat gacccagaat tccataactg ctcctgtgtt tttctccttc 120
ccagctcacg gatgattgac atccagacca agatgactga gcgagcgctg gagctcctct 180
gtttaccaga gggtcagcct tcttacctgt tagacattgg atgccgcctt ggaccgagat 240
.acagaggggg acctgctgct aggggacatg ggccagggcg tccctttcag accgggctct 300
tttgatggct gcatcagcat ctctgctgtg cagtggctct gcaacgccaa caagaagtcg 360
gacgtccctg ccaggcgcct gtactgcttt ntttcttcct tgtactctgg ccttgtccgt 420
gggcccgaan tgtcctgnag ctgtaccctg ngaantcgga gnaggttagc agcttgagct 480
atcanaaacc canggccacn agggngggct tcactggcgg nntgggtggt agaattcccc 540
caacagtgcc aaaagcnaan ggaggttcta ccnccgnntt gtttntgggg cttccaacnc 600
cc                                                                602
```

<210> 63
<211> 525
<212> DNA
<213> Mouse

<400> 63

```
aaagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
ntttggtct aggagaaata tgacccagaa ttccataact gctcctgtgt ttttctcctt 120
cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgcct tggaccgaga 240
tacagagggg gacctgctgc taggggacat gggccagggc gtccctttca gaccgggctc 300
ttttgatggc tgcatcagca tctctgctgt gcagtggctc tgcaacgcca acaagaagtc 360
ggacgtccct gccaggcgcc tgtactgctt cttttcttcc ttgtactctg cccttgtccg 420
tggggcccga gctgtcctgc agctgtaccc tgagaactcg gagcaggtga gcagctggag 480
ctgatcacaa nccaggccac gagggcaagc ttcactggcg gggtt              525
```

<210> 64
<211> 582
<212> DNA
<213> Mouse

<400> 64

```
naagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
ctnctggtct aggagaaata tgacccagaa ttccataact gctcctgtgt ttttctcctt 120
cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgcct tggaccgaga 240
tacagagggg gacctgctgc taggggacat gggccagggn gtccctttca gaccgggctc 300
ttttgatggc tgcatcagca tctctgctgt gcagtggctc tgcaangcca acaagaagtc 360
ggacgtccct gccaggngcc tgtactgctt cttttcttcc ttgtactctg cccttgtccg 420
tggggcccga gctgtcctgc agctgtaccc tgagaactcg gagcangtga gcagctggga 480
gctgatcaca anncanggca cgaggggang nttcactggc gggcgtggtg ggtagacttt 540
cccaaaagtg ncaaagcaaa gaagttctac ctctgtctgt tt                 582
```

<210> 65
<211> 523
<212> DNA
<213> Mouse

<400> 65
ggaagcccta cgggggccgac gacttcctgc ctgtgctcat gtacgtgctg gcctgcagca 60
acctcactga gatgctcctc aacgtggagt acatgatgga gctcatggac cccgccctgc 120
agttaggaga gggttcctac tatctgacca ccacctacgg agccctggag cacattaaaa 180
actatgacaa gatcacagtg acccgacagc tgagcgtgga ggtgcaggac tccatccatc 240
gctgggaacg caggcgcacg ctcaacaaag cgcgggcctc ccgctcctct gtgcaggact 300
tcatctgtgt gtcctacctg aagcccgagc agcagtcacg gacactggcg tcacgggcag 360
acacagcagc ccaggcactg tgtgcacagt gcgctgagaa gtttgaggtg tcacagcccc 420
aagactaccg gctcttcgtg ctggtggacg ggcgctgctt ccagctggcc gacgagggct 480
ctgccgcatc ggatcaaggg ttatctgttt cggagcgagc cca   523

<210> 66
<211> 662
<212> DNA
<213> Mouse

<400> 66
ggagccctgg agcacnttaa aaactatgac angatcacng tgacccgaca gctgcgcgtg 60
gaggtgcagg actccatcca tcgctgggaa cgcaggcgca cgctcaacaa agcgcgggcc 120
tcccgctcct ctgtgcagga cttcatctgt gtgtcctacc tgaagcccga gcagcagtcn 180
cggaccctgg cgtcacgggc agacacagca gcccaggcac tgtgtgcnca gtgcgctgag 240
aagtttgagg tgtcacagcc ccaagactac cggctcttcg tgctggtgga cgggcgctgc 300
ttccngctgg ccgacgaggc tctgccgcat cgcatcangg gttatctgct tcggagcgag 360
cccaaacgag acttccactt cgtgtaccgg ccccaggaca gcggccagga tgcttcaagc 420
cagccctgta tagtagtgcg gggnncccaa cttcctntaa gctgtggtgg caggatcttc 480
ctgagaggag gctaaagggn ttgganctgg gctctcaatt ggccgctctc cttaaccaca 540
catccctgcc aatctaggtg gctgtgtcag tcaccntggt ntaacggccc nttgagcctg 600
cttaagccaa tcnnggtaga gntattngcc tganggcacc anttctttag tttgnatgtt 660
an   662

<210> 67
<211> 589
<212> DNA
<213> Mouse

<400> 67
ggagccctgg agcacattaa aaactatgac aagatcacag tgacccgaca gctgagngtg 60
gaggtgcagg actccatcca tcgctgggaa cgcaggcgca cgctcaacaa agcgcgggcc 120
tcccgctcct ctgtgcagga cttcatctgt gtgtcctacc tgaagcccga gcagcagtca 180
cggacactgg cgtcacgggc agacacagca gcccaggcac tgtgtgcaca gtgcgctgag 240

25

```
aagtttgagg tgtcacagcc ccaagatacc ggctcttcgt gctggtggac gggcgctgct 300
tccagctggc cgacgaggct ctgccgcatc gcatcaaggg ttatctgctt cggagcgagc 360
ccaaacgaga cttccattcg tgtaccggcc ccaggacagc ggcaaggatg cttcaagccc 420
agccctgtat antantgcgg gaaccaattc ctantagctg tggtgggcag atctcctgna 480
aaggagctan aggatttgga ntggggtctc aattggccgc tcttcctttn accacaaatc 540
cctgccaaac ttaagggcct gtgtcaatcc ananngtgtt naacccccca          589
```

```
<210> 68
<211> 520
<212> DNA
<213> Mouse
```

```
<400> 68
tnnccagaga acctataggc actgtttggg agtaccgggg ctgtcagtta gctgtgtagc 60
ctnaccagcc actttctcct ctgagtcacc ctgcccttgc tattgcttta gagtggggaa 120
cagagtcctg ccctccctgg ggccagtggg gttctggtag ctataacttg ttctacctag 180
ccctccagga cccagcccca tgtaagaggc tcatggaggg aagaaaattg ggtagtgtgt 240
gccaagtgct ctgactaccg tgcggantga aatatgacag caacaggccc aaccgagtct 300
gcctgacctg ctacacattt ctcactggaa acgtactccc tcaaggcaag gaggacaaga 360
ggcggggcat cttggagaaa gaggcctcag cagcacccga gcagagtctg gtgtgcagct 420
tcctgcagct cataggggac aagttcagca ggagccttcc ccgggagctg gtgtgttgan 480
cccccgggat ngacccccctt gtcctgtatg tcnatggagc                    520
```

```
<210> 69
<211> 522
<212> DNA
<213> Mouse
```

```
<400> 69
gttttgttaa ggcatattgc aggactcaat gccaatagag ccaaaaatat tattgagtgg 60
cgagagaaaa atggcccttt cattaaccga gaacagttga agaaggtgaa agggcttggt 120
ccaaaatcct tccagcagtg tgctggcttc gtcaggatca accaggatta catccggaca 180
ttctgcagtc aacacactga ctcttcaggc cagagccagg aaactgccat ggtcacaaat 240
gagaagctgg gcaaaaagaa gaacaangca gatgccaccc tcataccaaa cccactggac 300
cagacttgca tccatccgga atcctatgac atagcagtca ggttttttatc gttcattggg 360
gggacaatgt gtgagattgg aaagcctgaa atgcagcaga aaataaacgt gtctctcggg 420
aaagaagggc atagagggaa ctgctgaaag gttacagaca actgtgcaca cactgcaggt 480
catcatagat ggactgagcc agccccaaaa ncttttgaca tc                  522
```

```
<210> 70
<211> 538
<212> DNA
<213> Mouse
```

```
<400> 70
```

```
ggccaccaat gtggcagaga cttccatcac aatcagtggc attgtgtatg tgatngactg 60
tggctttatg aagctgcgag cctacaaccc caggacagct attgaatgct tggtggtggt 120
accagtgtct caggcgtcag caatcagcgg gcaggacgtg gtgggcgcaa ccgctcggga 180
aagtgttatc gcctttacac agaggaagcc tttgaccagc tacctcagtc caccgtccct 240
gagatgcagc gcanaatttg gcccccgtca tcctgcagct aaaagcccta gggatagaca 300
atgtcctcag gttccacttc atgtctcccc cgccagcaca gtcgatggtt caagccttgg 360
agctgctcta tgctctcgga ggtctggaca aagactgtcg cctaactgag cctcttggca 420
tgagaattgc agagtttcct ctgaaccccca tgtttgccaa gatgctgctg gaatcagggg 480
aacttcggnt gttctcagga ggtcctgagt atcgncgcca tgattgcaga tccanaat   538
```

```
<210> 71
<211> 527
<212> DNA
<213> Mouse
```

```
<400> 71
ggccaccaat gtggcagaga cttccatcac aatcagtggc attgtgtatg tgattgactg 60
tggctttatg aagctgcgag cctacaaccc caggacagct attgaatgct tggtggtggt 120
accagtgtct caggcgtcac caatcagcgg gcaggacgtg gtgggcgcaa ccgctcggga 180
aagtgttatc gcctttacac agaggaagcc tttgaccagc tacctcagtc caccgtccct 240
gagatgcagc gcanaatttg gcccccgtca tcctgcagct aaaagcccta gggatagaca 300
atgtcctcag gttccacttc atgtctcccc cgccagcaca gtcgatggtt caagccttgg 360
agctgctcta tgctctcgga ggtctggaca aagactgtcg cctaaactga ngctctttgg 420
gcatgagaat tgcagagttt tctctgnacc ccattgtttg gccaagatgc tgctggaatc 480
aggggacttt cgggctgttc tcaggaggtc ctgaagtatt ngccgcc             527
```

```
<210> 72
<211> 691
<212> DNA
<213> Mouse
```

```
<400> 72
aggaagcctc aagaagatgg ctgtctccac ttagctaaaa caccatctcc aaaggcttga 60
naaagagagc tgttcagctt ccagaaacag ctaagatanc tgtgccctct ggagctaagc 120
tagcttagct agcctccatc tcaggggctc agttcccccta ccaggtctcc cttagtagca 180
catgacggag ctacatagcc tatntgcatg tgtacctgtt tccatagtct ttngcatgtg 240
gattgctgcg gagaggaggt cttgtttcct tganaacaga agcnntgaag caaaggctat 300
ttatcccttn gcnttctcac catcacggtt tgccancagc atggccctgc gcatgcgngn 360
anctaatccn nnaatgtgna agtggcaggt gacacaggag caacaatgga gccagatttc 420
ctgggggggga nagcagtctc ctgagntctc ttttcctagc tggaaaacca aaacgtttaa 480
tcagggattc ccttncctttt anngtgnccc agnttcccna angnatttcc ccnaagtagg 540
aaggggcaag gggcaaaggg gttgtnctcc anggggggtt tggtncctnt tgggcnnaat 600
tttcctggac cacccgttng gnacttttct taaangggcc tggttaaaaa aagggcttgc 660
ctttccttaa ggggggggcc anaacntttt c                            691
```

```
<210> 73
<211> 585
<212> DNA
<213> Mouse

<400> 73
ggaacactat aaggacccca gtgcctgtat gttctttgag ccgctcttgt ccactccctt 60
aatccggacg ttccccttttt ccttgcagca tatttgcaga acggttattt gtaattgtac 120
gacttacgat ggcatcgatg cccttcccat tccttcgcct atgaaattgt atctgaagga 180
ataccattat aaatcaaaag ttaggttact caggattgat gtgccagagc agcagtgatg 240
cggagaggtt agaatgtcga cctgcataca tattttcatt taatatttta ttttcttat 300
gcctctttga attttgtac aaaggcagtt gaatcaaata aaactgtgcc ctaagtttta 360
attccagatc aatttatttt tttatgata cacttgttat atattttaa gcaggtgttt 420
ggttttgttt ttaccatata aatttacata tggtccaggg atatttacaa tttcaaggca 480
ttgcatatac atttgaataa ttcngtattt ttaaaaaaan cttttgntcc ttcccaaggg 540
gtgaaatatt ttggntaant ctatggctat caggtattcc ttggg          585


<210> 74
<211> 549
<212> DNA
<213> Mouse

<400> 74
ggcccgttca tcctggcctg agctttgttg ccctgctaag ttttttaagtg ggtgtaaggt 60
tttgtcaagc caactccatt tgcttgtctt atgctcagtt tacacagtac taggaggcct 120
gtacctccca tgttccgtct gccattccga tacagctgtg gaccttttgc actaggtgaa 180
ccgtcactgt gggaatgaga ccactggggc atttgccata gatcctgatc ttagctgaag 240
tgaacaataa aatacaaatg agtggaaatt tggcaaatca aatacttgga gccaacgtgg 300
atacattaat agattccctg cactcaggga gtgtcatgtg tttttctgac ctccaggggg 360
cgcatgagac cangctgtct ttgcttcatg cggcggcaca gccagtcctc cgangattac 420
atcttcatcc ccagaagatg caagccttca gaagantgag agatgactgc aatgtaaatg 480
gtggggaagc ctatnggnct gtgaatgaaa taaatgttcc atggtcaatt atntcaggga 540
ccatctttg                                                  549


<210> 75
<211> 564
<212> DNA
<213> Mouse

<400> 75
cggcgcgcan agggccgtga gtcgcacgtg tgaaaccgga gaacccatgg aggctgaaac 60
ctgcgaccca ggaaccgaag cccatcccag gtctacctgc cnggnagagg gccgccactn 120
ancgagggan angagctggt aatggatgaa gaggcctacg tgctgtacca tcgtgcgcaa 180
actgactgat gatgcttcgg atgcacaatc tccatggcac caggccgtca ccctcagagg 240
gcagtgatga cgatgaggaa natgaagatg aagangatga ggaggagcag aaacctcagc 300
tggaactggc catggttccn canttacggt ggcatcaacc ganttcgggt atcttggctg 360
```

```
ggggangaac ctgtggctgg aattaggtca gaaaaaggcc antggtngta ttcgcantgc 420
ggcggctnct gcagtggtgg gatnacccccc aaggcntggc natcttnctc cgatatganc 480
cangccgaan aaaacccanc ttctcctttg ctngccaaan ggganagggc tttctcttga 540
atngtanccn tcgggtnacc gggn                                        564
```

<210> 76
<211> 523
<212> DNA
<213> Mouse

<400> 76
```
cggcggcaag ggccggagtc gcacgtgtga aaccggagaa cccatggagg ctgaaacctg 60
cgacccagga accgaagccc atcccaggtc tacctgcccg gcagagggcc gccactgagc 120
gagggagagg agctggtaat ggatgaagag gcctacgtgc tgtaccatcg tgcgcaaact 180
gactgatgat gcttcggatg cacaatctcc atggcaccag gccgtcaccc tcagagggca 240
gtgatgacga tgaggaagat gaagatgaag aggatgagga ggagcagaaa cctcagctgg 300
aactggccat ggttcctcac tacggtggca tcaaccgagt tcgggtatct tggctggggg 360
aggaacctgt ggctggagta tggtcagaga agggccaagt gaagtgttcg cactgcggcg 420
gctcctgcaa gtggtngatg accccccaagc cctggccatc ttcctccgag atgagcaggc 480
ccgaataaaa cccatcttct cctttgctgg ccacatggga gag                  523
```

<210> 77
<211> 509
<212> DNA
<213> Mouse

<400> 77
```
ccggcgccga agccctcaat ggccagtccg acttcccccta tctgggcgct ttccccatna 60
atccaggcct cttcatcatg accccagctg gcgtgttcct ggctgagagt gcactgcaca 120
tggctggcct ggccgagtac cccatgcagg gagagctggc ttccgccatc agctcaggca 180
agaagaagcg gaaacgctgc ggcatgtgtg cgccctgccg gcggcgcatc aactgtgagc 240
agtgcagcag ttgtaggaac cgaaagactg gccatcagat ttgcaaattc agaaagtgtg 300
aagaactcaa aaagaagcct tccgctgctc tggagaaggt gatgcttccg tcgggagccg 360
ccttccggtg gtttcagtga tttcagtgac ggccgggaac ccaaagctgc cctctccgtg 420
caatgtcact gcccgcgtgg tctcggcaag ggattcgggc gaagacaaac ggatgcaccc 480
gtctttagaa ccaanaatat tctctcaca                                  509
```

<210> 78
<211> 364
<212> DNA
<213> Mouse

<400> 78
```
gacnctctng tttgggntgc tnttttnntn tgcgttcctg cngtttacnn anggcngngc 60
cccnggtctn ntgcataatc tgatcgaaan gtttcnacaa ntatccgcna ttcnctttcc 120
```

```
acctgtcgtn ctggccgnct ctctatgcac gattntagga ccctgagacc tcttctancc 180
caggaccttt atacccctct aaccatnaaa agatcaacct ttggaancct tagtacantc 240
canccgacnn cagaaacaaa aatctcaata tttgggganaa ggactagcgg acatggatcc 300
atcaaatant cgncttggta tattttccgg ttctgaacaa atctgcgacc ctaaaacnct 360
naat                                                                364
```

```
<210> 79
<211> 517
<212> DNA
<213> Mouse
```

```
<400> 79
ggctgcggaa aggggggcctg agggctcctc tccggaagct gtgccagggg acgcgaccat 60
ccccagggtg aaactcctgg acgccatagt agacactttc ctccagaagc tagtcgccga 120
caggagctac gagaggttca ccacctgcta caaacacttc caccagttga accctgaggt 180
gacgcagagg atctatgaca agtttgtggc tcagttgcag acatccatcc gcgaggaaat 240
ctcagaaatc aaagaggagg ggaacctaga agctgtcctg aactccctgg ataagatcat 300
agaagaaggc agagagcgcg gagagccagc ctggcgaccc agtggaatcc cagagaaaga 360
cctgtgtagt gtcatggcac cctacttcct gaagcaacag gataccctgt gtcatcaagt 420
acggaaacag gaagccaaga accaggaact ggccgacgct gtcctggccg ggcgcaggca 480
ggtggaggag ctgcagcagc aggttcgggc cctccan                            517
```

```
<210> 80
<211> 532
<212> DNA
<213> Mouse
```

```
<400> 80
acaggatatt atgagcttat accaggaccc agatggaacc cgaaagctac tgaacttcat 60
gcttgacaat cttgcagttc atccaganca gcttcctccg aggccatgga ttacattaan 120
agaacgagnc caaattctgc catcagcatc attcacggtt atgtgttaca angtgntatg 180
tgataaatat gctaccaggc agctatatgg ctattgnccg tcctgggcat taaactggga 240
atacaggnaa nagggnatta tggnagaaat tgttaactgg gacgcagata tcattagtct 300
tcaggaagtg gaaacagagc aatactttan tcnctntctg ccagcattga aggatcgtgg 360
atatgatgga ttttttttctc caangtcacg tgccaaaatc atgtctgagc aggacngaaa 420
gcatgtggat ggttgtgcaa tattcttcaa aacngaaaaa tttacattgg tgcagaagca 480
tacagtggaa ttcaaccagg tagcaatggc aaattcagat gggttccgaa gc          532
```

```
<210> 81
<211> 531
<212> DNA
<213> Mouse
```

```
<400> 81
gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60
```

```
ccgggccgat tcatttccca gttgtgttgt agacgaaagc ctcctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgnccaagt tcaaatatgg cagactttcg gaagtgtttt 180
gcgaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtgggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcaggcct ttgctcgaaa cccatcacag gtgtgggagt tttaccacta cctgagggag 360
gtcatncnga naaagaaccc aaccccgggc acctggccat tncccagtgt gaagcccggc 420
ttcntnanca gggcanacgg gttgtggtca tcacccanaa cattgacgag ttgcatcgca 480
angcttngna ccaagaactt cttggaaatc cacgggaact tatttaaaac t            531
```


<210> 82
<211> 538
<212> DNA
<213> Mouse

<400> 82
```
gnagcctgcc tggngaagta agacttcaac gaaaacctga tgcaacctct cctgantgca 60
ccgggccgat tcanttccca gtngtattgt agacgaaagc ntcctgcntc cccacaaagc 120
aaganctgcc tcaccatggc tcgtccaagt tcaaatatgg cagactttcg gaagtntttt 180
gcnaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtgggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcangcct ttnctcgaaa cccatcacag gtgtgggagt tttaccacta cctgaaggag 360
gtcntgcgga cnnaagancc caaccccggg cacctggcca ttncccagt gtgnagccgg 420
cttcgtngac cnggcggaa ggttgtngtc atccccgan cattgncggg ttgnatcngc 480
naggctngca ccaagaactt ctgggaantc cccnggggac ccttnntttn ttccctca    538
```


<210> 83
<211> 562
<212> DNA
<213> Mouse

<400> 83
```
gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60
ccgggccgat tcatttccca gttgtgttgt agacgaaagc ctcctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgtccaagt tcaaatatgg cagactttcg gaagtgtttt 180
gcgaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtgggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctaaggcct ttgctngaaa ccnatcacag gtgtgggatt tttaccacta cctgagggag 360
gtcatgcgga aaaagnaacc ccaaccccgg ggcacctggc cattcccca gtgtnannc 420
ccggtctttc gttcaccagg ggnaaaaacn gggtttgtgg gtcatccncc cagaaanntt 480
tgnnnggttt tntncatnnc caaaggnntg ggcancccaa anaaantcnt ttgnggggna 540
aaatcccggn gggggcantn tt                                          562
```


<210> 84
<211> 533
<212> DNA
```
```

<213> Mouse

<400> 84

gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60
ccgggccgat tcatttccca gttgtgttgt agacgaaagc ctcctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgtccaagt tcaaatatgg cagactttcg gaagtgtttt 180
gcgaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtgggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcaggcct ttgctcgaaa cccatcacag gtgtgggagt tttaccacta cctgagggag 360
gtcatgcgga naaagaaccc aaccccgggc acctggccat tgcccagtgt gaagcccggc 420
ttcgtgacca nggcagacgg gttgtggtca tcacccagna acattgacga gntgcatcgn 480
aagggctggc accaagaacc tttctgggaa atccacggaa cttatttaaa aan   533

<210> 85
<211> 547
<212> DNA
<213> Mouse

<400> 85

tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgantgtg gggaggcctt 60
tgcntggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgcnt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccntgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg angctaatgt gctgaaaaga actggaaagg ggcagggccc tcntcttaaa 480
aacncacttt ggtctgatgt tntattctgt aaacctcaga tgtgagggaa gactcatttc 540
tgcgtnn   547

<210> 86
<211> 553
<212> DNA
<213> Mouse

<400> 86

tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggggcc tcatcttaaa 480
aacacacttt ggtctgatgt tatattctgt aaaccatcag atgtgaggga agactccatt 540
tctgcagtat ttt   553

32

```
<210> 87
<211> 475
<212> DNA
<213> Mouse

<400> 87
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggncc tcatc       475
```

```
<210> 88
<211> 560
<212> DNA
<213> Mouse

<400> 88
cgctgcttgc taggtggcat ggctgaaccg gcacccgccg tgtggccttc ggccccggat 60
ctgactcccg cgcccgggac tccgagcgaa ntgcgccgcc gcgggacaac tgggtgtact 120
gggccatgct gccgccgcca ccacctcctc tgtcgtcccc agtggcgggc tcggagcaga 180
gccggaaggg acagcctcac gngcngcccc agcctccctc cggagcgctt ccaccgttcg 240
atgctcagat tcttcccgcg gcgcagcnac ctttcgatgc ccaggctccg cccgatgctc 300
aatctcagtt cagnggccag caggcctgga atttgcaagc ctccacgcct tggtactggg 360
gattgtctcc taatggtttt tccacgtacc acacgtctta ccaatctccg gttacacatt 420
cttattttcc acgatcacat gatgcaaaat tcaattttgc ctncaaaaca gaaaaacgga 480
aacggaagaa aaaagaaaag gaaccggant ttccatttta tnctggggga nacctgtgan 540
cgngggcttt aaaaaattna                                              560
```

```
<210> 89
<211> 544
<212> DNA
<213> Mouse

<400> 89
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctctag 120
gaacccttcc agttctgctt gcttgtggtc aagcaccaca agaatcacat acaaaaaacc 180
aaacaaagc cacactcaga gcccttctct gccagaagca aaactcactg gtgggagaat 240
tggcagcttc taatgtgtgg gtggttttct ttatacgacc tgaggtataa ggctaagtag 300
ctctgctatg actgtcccat gacatgacag ttgtagcatg agtgacccta aggctcatgt 360
```

```
gtggtagtgg attcttgagg natttctaca ggcatatctg tgattatttt ctggatgcta 420
atgtgctgaa aagaactgga aaggggcagg ggcctcatct taaaaacaca ctttngtcng 480
atgttatant ctgtaaaacc atcagatgtg aggggagact cccattctgc agtattttaa 540
tacc                                                                544
```

```
<210> 90
<211> 558
<212> DNA
<213> Mouse
```

```
<400> 90
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcaggggcc tcatcttaaa 480
aacacacttt gggtctgatg ttatattctg taaaaccatc agatgtgagg gaagactcca 540
ttttctgcag tattttaa                                                 558
```

```
<210> 91
<211> 542
<212> DNA
<213> Mouse
```

```
<400> 91
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggnc ctcatcttaa 480
aaacacactt tggtctgatg ttatattctg taaaccatca gatgtgangg gagactccat 540
tt                                                                  542
```

```
<210> 92
<211> 551
<212> DNA
<213> Mouse
```

```
<400> 92
```

```
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggccc tcatcttaaa 480
aacacacttt gggtctgatg ttaaaattct gtaaanccat cagatgtgaa gggaagacnc 540
ccatttctgg n                                                     551
```

```
<210> 93
<211> 522
<212> DNA
<213> Mouse

<400> 93
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgnggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggncc tcatcttaan 480
aacacacttt ggtctgatgt tatattctgt aaaccatcag at                  522
```

```
<210> 94
<211> 531
<212> DNA
<213> Mouse

<400> 94
gctgcttgct aggtggcatg gctgaaccgg caccgccgt gtggccttcg gccccggatc 60
tgactcccgc gcccgggact ccgagcgaan tgncgccgcc gcgggacaac tgggtgtact 120
gggccatgct gccgccgcca ccacctcctc tgtcgtcccc agtggcgggc tcngagcaga 180
gccggaaggg acagcctcac gtgctgcccc agcctccctc cgnagcgctt ccaccgttcg 240
atgctcagat tcttcccgcg gcgcacttcc tttcgatgcc caggctccgc ccgatgctca 300
atctcagttc agcggccagc aggcctggaa tttgcaagcc tccacgcctt ggtactgggg 360
attgtctcct aatggttttt ccacgtacca cacgtcttac caatctccgg ttacacattc 420
ttattttccn cgatcacatg atgaaaattn aatttgctca aaacagaaaa acagaaaacg 480
aagaaaagaa anggancggg tttncatttt tcngtganac cgtgaacggg g        531
```

```
<210> 95
<211> 581
```

35

```
<212> DNA
<213> Mouse

<400> 95
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgcnt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt ctacaggcat atctgtgatt 420
attttctgga tgctaatgtg ctgaaaagac tgggaaaggg cagggcctca tcttaaaaac 480
acactttggg tctggtgttt atatctgtna aaacanccna tgtganggga ggntcccatt 540
ctgcantatt ttaanaccat ttatantctg ggnccaattg g                     581


<210> 96
<211> 528
<212> DNA
<213> Mouse

<400> 96
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggnatt ctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg ggcagggcc tcatcttaaa 480
acacactttg gtctgangtt anattctgta aacntcngat gtggaggg            528


<210> 97
<211> 571
<212> DNA
<213> Mouse

<400> 97
tgataagtct gatgcatctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcat ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccaaaa caaagccaca ctcagagccc ttctctgcca gaagcaaaac 240
tcactggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgangtatt ctacaggca tatctgtgat 420
tattttctgg atgctaatgt gctgaaaaga actggaaagg gggcagggnc ctcatcttaa 480
aaacacactt tggtctgatg ttatattctg taaaccatca gatgtgaggg aagactccat 540
```

```
ttctgcagta ttttaatacc acttatactc n                              571
```

```
<210> 98
<211> 400
<212> DNA
<213> Mouse
```

```
<400> 98
cgctgcttgc taggtggcat ggctgaaccg gcacccgccg tgtggccttc ggccccggat 60
ctgactcccg cgcccgggac tccgagcgaa gctgcgccgc cgcgggacaa ctgggtgtac 120
tgggccatgc tgccgccgcc accacctcct ctgtcgtccc cagtggcggg ctcggagcag 180
agccggaagg gacagcctca cgtgctgccc cagcctccct ccggagcgct tccaccgttc 240
gatgctcaga ttcttcccgc ggcgcagcct cctttcgatg cccaggctcc gcccgatgct 300
caatctcagt tcagcggcca gcaggcctgg aatttgcaag cctccacgcc ttggtactgg 360
ggattgtctc ctaatggttt ttccacgtac cacacgtctt                     400
```

```
<210> 99
<211> 490
<212> DNA
<213> Mouse
```

```
<400> 99
ggggatcctg ccctgatgac tccgccacca ggagccaaac ctcacaagtg tctggtctgt 60
ggaaagggct tcaatgatga aggcatcttc atgcagcacc agaggattca tatcggagan 120
aacccctaca aaaatgcaga tggcctcata acacacccag cccccaagcc tcaacagtta 180
cgcccctcca ggctcccctt tggaggcaat tcacncccag gtgcttcaga gagnaganct 240
ganccccccag ganagncctc gnaagtnccc ngnaatnang ngggctcang nccaaggann 300
ngccaacnct ctcnaaagtg ctagatgtgg tgccacngtg gnnccagttn ntttaagggg 360
tttgccctaa acagnngntt ttncggggat naaagccntt tctgggtgat gtangattgc 420
ctggggacgg gatgancagc ncttctaacg naancctnaa tgcaggtgna aangttgctn 480
gnttgntttc                                                      490
```

```
<210> 100
<211> 495
<212> DNA
<213> Mouse
```

```
<400> 100
ttnngcaaga aagtgtatga gtgtaaagaa tgtggcaagg cttttggttg tcattcaaat 60
natnagtcgc catcagaaaa tccatgctgg agagaaaccg tttaaatgta ggcctttggt 120
caaagagcac atcttaccaa acatcagaga attcacactg gtgaagaagg ccctgatgaa 180
tgtcagagcg tggaaaagtt tttccttgaa gaccacaact atgtcgacat cagaaaatcc 240
atactggtgt gaaatgatgg aatgtatgag gaatgtagaa tgtggctctt attcgtggtt 300
tttattgtac ccacactgga atattcacat tagtggcaag ccctgagtcc cagggatgtg 360
ggaaagtcta catctggagt gcaggcttaa ttgtcaccag agcattcata ctgaggaaag 420
```

aaaatagtcc aaggaatatg gaaagactat tcatggttta aagcttaaat catcatcaga 480
aatatgtact gtggn   495

<210> 101
<211> 663
<212> DNA
<213> Mouse

<400> 101
tngcaagaaa gtgtatgant gtaaagaatg tggcaaggct tttggttgtc attcaaatct 60
tanacgccat cagaaaatcc atgctggaga gaaaccgttt aaatgtaggg actgtgaaaa 120
ggcctttggt caaagagcac atcttaccaa acatcagaga attcacactg gtgaagaagg 180
ccctgatgaa tgtcagagcg tggaaaagtt tttccttgaa gaccacaact atgtcgacat 240
cagaaaatcc atactggtgt gaaatgatgg aatgtatgag gaatgtagaa tgtggcncta 300
atccgnggtt ttaattgtac ccacncntgg aatatcccca ttagtgggaa acccnngntt 360
cccnngggng tttggggaaa tncaaccatc tgggggtcnn nggntnaatt ttgncccgg 420
gggntttca atncctgggg gaaaaagnaa natttccccc nggggttttt ttggggannn 480
gctccnttc cnggggtttt taaagggctt tnaaacnccc nncccncngg ggaaaaantt 540
tgtnnccnct tgggggggg ggnnttttta accccccgg ggggnttcc ncccncnann 600
annnnccccc ccgggggggg ccccccgggg gttcccccnn gggntacnc nttccccccc 660
ccn   663

<210> 102
<211> 325
<212> DNA
<213> Mouse

<400> 102
gggtcgnccc angcgtcccg cggacgcgtg ggtcgcaaga nagtgtatga gtgtaaagaa 60
tgtggcaagg cttttggttg tcattcaaat cntnttcgcc atcagaaaat ccatgctgga 120
gagaaaccgt ttaaatgtag ggactgtgaa aaggccttgg tcaaagagca catcttacca 180
aacatcagag aattcacact ggtgaagaag gccctgatga atgtcananc gtggaaaagt 240
ttttccttga agaccacaac tatgtcgnca tcagaaaatc catactggtg tgaaatgatg 300
gaatgnttgn ggatgnagat tttgc   325

<210> 103
<211> 554
<212> DNA
<213> Mouse

<400> 103
gctttctttt gtaacaaaat acctgcaatt gagaaactta caagggaaga ggttgacttt 60
ggctcagcat cctgaagacc gggaagtcca ggatgtcact tctgttttct ctgtcatccg 120
ggggctaccg aagtgtgggc cgaagcagcc gaagtctccc caggaagctg gaaaaagcct 180
cacccccagc tcttcagtct tcaggcagag gaagaaccga tgctggaaca gcgctgcagg 240

```
ggccccacgg ccatgggccc agctcagccc tggctctttt ctgggccctc ccaggagtcc 300
tcccagcccg acagagggtt gaggtaccag ggcaaatcag ctcagccaag aggccaaacc 360
ccaggcaagg tccatcgttg tgcccactgt cggaagcgct tcccgggctg ggtggccctg 420
tggcttcatg ctcggcggtg ccaggcccgg ctgcctctgc cctgccatga atgcaaccag 480
cgctttcgcc acgccccctt cttagcgctg catcttcagg ttcatgcttc tgcagtcccc 540
ganctgggnt tcat                                                  554
```

```
<210> 104
<211> 539
<212> DNA
<213> Mouse
```

```
<400> 104
gcgatggatg tggatacccc cagcggcacc aacagcggcg cgggcaagaa gcgctttgaa 60
gttaaaaagt ggaatgcagt ggccctctgg gcctgggaca ttgtggttga taactgtgcc 120
atctgcagga accacattat ggatctttgt atcgaatgtc aggccaacca ggcgtcagct 180
acttccgaag agtgtacggt tgcatgggga gtctgcaacc atgcttttca tttccactgc 240
atctctcgat ggctcaaaac gaggcaggtg tgtccgttgg acaacagaga gtgggagttc 300
cagaagtatg ggcattagga aagactttcc cgcaaggcgt acccatctgt tactcgtcta 360
gtgacttcct gttaattata cattagatag aaccatggtc ctttttcgtt cctttgtttt 420
tggagtttgg tgttcccgca gccatattgt attttgtgtc aaataaagcc tttaagttgg 480
aggtggttgc tgtttcatgt atgtgggaga gtgatctgag aaggagccag aaagccaga  539
```

```
<210> 105
<211> 557
<212> DNA
<213> Mouse
```

```
<400> 105
gcgatggatg tggatacccc cagcggcacc aacagcggcg cgggcaagaa gcgctttgaa 60
gttaaaaagt ggaatgcagt ggccctctgg gcctgggaca ttgtggttga taactgtgcc 120
atctgcagga accacattat ggatctttgt atcgaatgtc aggccaacca ccgaagagtg 180
tacggttgca tggggagtct gcaaccatgc ttttcatttc cactgcatct ctcgatggct 240
caaaacgagg caggtgtgtc cgttggacaa cagagagtgg gagttccaga agtatgggca 300
ttaggaaaga ctttcccgca aggcgtaccc atctgttact cgtctagtga cttcctgtta 360
attatacatt agatagaacc atggtccttt ttcgttcctt tgtttttgga gtttggtgtt 420
cccgcagcca tattgtattt tgtgtcaaat aaagccttta agttggaggt ggttgctgtt 480
tcatgtatgt ggagagtgat ctgagaagga gccagaaagc agaaaggca gcctcaagaa 540
gtgctctgtt cttaagg                                              557
```

```
<210> 106
<211> 586
<212> DNA
<213> Mouse
```

```
<400> 106
gcgatggatg  tggataccce  cagcggcacc  aacagcggcg  cgggcaagaa  gcgctttgaa 60
gttaaaaagt  ggaatgcagt  ggccctctgg  gcctgggaca  ttgtggttga  taactgtgcc 120
atctgcagga  accacattat  ggatctttgt  atcgaatgtc  aggccaacca  ggcgtcagct 180
acttccgaag  agtgtacggt  tgcatgggga  gtctgcaacc  atgcttttca  tttccactgc 240
atctctcgat  ggctcaaaac  gaggcaggtg  tgtccgttgg  acaacagaga  gtgggagttc 300
cagaagtatg  ggcattagga  aagactttcc  cgcaaggcgt  acccatctgt  tactcgtcta 360
gtgacttcct  gttaattata  cattagatag  aaccatggtc  ctttttcgtt  cctttgtttt 420
tggagtttgg  tgttcccgca  gccatattgt  attttgtgtc  aaataaagcc  tttaagttgg 480
aggtggttgc  tgtttcatgt  atgtggagag  tgatctgaga  aggagccaga  aagccagaaa 540
gggcagnctc  aagaagtgct  ctgttcttaa  gggggacaca  cttggc             586
```

```
<210> 107
<211> 535
<212> DNA
<213> Mouse
```

```
<400> 107
gggaagagtt  ttgcccacca  gtccaaactg  gtggagcacc  tgtacactca  cacaggtgaa 60
aagccatttc  agtgcccaga  ctgcgacaag  tatttcggcc  gggcttcttc  cctgagcatg 120
catcgagcca  tacaccgagg  ggaacggccg  catcagtgtc  ctgactgtgg  gaagagtttt 180
acccagcggt  ccacattggt  ggcgcacatg  tacactcaca  caggcgaaaa  gccgttccat 240
tgccctgact  gcaacaaatc  tttcagccgg  ccttcttccc  tgagctctca  ccgggccata 300
cacagagggg  aacggcctca  ttgttgctct  gactgtggcc  gagctttcac  gcatcgctct 360
ggcctcattg  cccatctccg  tgtccacact  ggggagaagc  cttactgttg  tgctgattgt 420
ggacgctgct  tcagccagag  ctctgggctc  cgtgagcacc  agcgggtggt  acacagcggt 480
gtgaccccct  tcacttgcac  tcactggcgg  cagagccttt  gcccgggggcc  gcata      535
```

```
<210> 108
<211> 524
<212> DNA
<213> Mouse
```

```
<400> 108
gggaagagtt  ttgcccacca  gtccaaactg  gtggagcacc  tgtacactca  cacaggtgaa 60
aagccatttc  agtgcccaga  ctgcgacaag  tatttcggcc  gggcttcttc  cctgagcatg 120
catcgagcca  tacaccgagg  ggaacggccg  catcagtgtc  ctgactgtgg  gaagagtttt 180
acccagcggt  ccacattggt  ggcgcacatg  tacactcaca  caggcgaaaa  gccgttccat 240
tgccctgact  gcaacaaatc  tttcagccgg  ccttcttccc  tgagctctca  ccgggccata 300
cacagagggg  aacggcctca  ttgttgctct  gactgtggcc  gagctttcac  gcatcgctct 360
ggcctcattg  cccatctccg  tgtccacact  ggggagaagc  cttactgttg  tgctgattgt 420
ggacgctgct  tcagccagag  ctctgggctc  cgtgagcacc  agcgggtggt  acacagcggt 480
gtgancccct  tcacttgcac  tcactgcggc  agagcttttg  cccg                  524
```

```
<210> 109
```

<211> 687
<212> DNA
<213> Mouse

<400> 109
gtgacaaatg ctttncccaa anntgnagtc ttatttttca tcagagagtt catacaggag 60
ngaatcctca caactgtngt gaatgtgaca nctgcttcan cctcaanagt gatcntngag 120
ttcatcagag aattcacaca ggnnaganac cttncanntg taatgaaggt gacaacgtct 180
tttatcnaga gatccaatct tagaagcacn tcagagantt catacangag annaacctta 240
caaatgtagc gnnatgngnn anntccttta cccacanatg nagncttngc cttcgtcnga 300
gaagtcatac aggagnngga ccttncgagt gtngtgaatg tgacaanngc ttnaccaaca 360
naggntacct tgtangnnat cngnaggnat cntncaggag agccacctta acagnngtgc 420
tgactgngac ananggtttt ncccncaaat ggcngtcttn gtntncatcg ggganctcct 480
accggagggg cnncctttca cagggtnggn gaatntggga aaanttctta ngncccaaaa 540
ngnaagttng tcnanaacgn catngnggga cttgcggnan ccgttatngg ggtaatttnc 600
cannnctgnn nnttgnntgn agagnnaatt cngntcccan ggaagagnga ccnacancct 660
tantttttn ggaggagggn accnccn   687

<210> 110
<211> 562
<212> DNA
<213> Mouse

<400> 110
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaagccgttc cgctgtggcc gctgccccta cgcctcagcc cagctcgtca 120
acctgacgcg acatacccgc acccatactg gcgagaagcc ctaccgctgt ccccactgcc 180
cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgcacccac acagggcctc 240
ccactcctcc ctgcccaacc tgtggctttc gatgctgtgc tccacgacca acccggcctc 300
ccagtcccac agagcaggag gggacaatgc cccgacgatc agaagatgcg ctgatcctgc 360
cagacttgag tcttcatgtg ccaccaggtg gtgccagttt cctgccagac tgtgggcagc 420
tgcggggtga aggggagagc ttgtgtggaa ctggatccga accactgcca gagctactgt 480
tcccttgga cctnnccggg gctgtggaca aggaactgga ggaaggtnaa gggcannaag 540
gctggggagc ttgccatttn tt   562

<210> 111
<211> 559
<212> DNA
<213> Mouse

<400> 111
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaagccgttc cgctgtggcc gctgccccta cgcctcagcc cagctcgtca 120
acctgacgcg acatacccgc acccatactg gcgagaagcc ctaccgctgt ccccactgcc 180
cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgnacccac acagggcctc 240
ccactcctcc ctgcccaacc tgtggctttc gatgctgtgc tccacgacca acccggcctc 300

```
ccagtcccac agagcaggag gggacaatgc cccgacgatc agaagatgcg ctgatcctgc 360
cagacttgag tcttcatgtg ccaccaggtg gtgccagttt cctgccagac tgtgggcagc 420
tgcggggtga aggggacagc ttgtgtggaa ctggatccga accactgcag agctactgtt 480
cccttggacc tgccgggggct ntggacagga actggaagan ggttaagggc agcaggttgg 540
gaacttncat gtntgggcn                                                559
```


```
<210> 112
<211> 605
<212> DNA
<213> Mouse
```


```
<400> 112
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaagccgttc cgctgtggcc gctgcccccta cgcctcagcc cagctcgtca 120
acctgacgcg acatacccgc acccatactg gcgagaagcc ctaccgctgt ccccactgcc 180
cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgcacccac acagggcctc 240
ccactcctcc ctgcccaacc tgtggctttc gatgctgtgc tccacgacca acccggcctc 300
ccagtcccac agagcaggag gggacaatgc cccgacgatc agaagatgcg ctgatcctgc 360
cagacttgag tcttcatgtg ccaccaggtg gtgccagttt cctgccagac tgtgggcagc 420
tgcggggtta aggggagagt tgtgtggaac tggatcgaan cactgcagag ctactgttcc 480
cttggactgc cgggctgtgg acggnactga ggaggtgagg cancagcttg gantgccatt 540
ntgggcgccn nctgcaagag aagctgaagg gttccactgg ggacccaggg ccttgtgaaa 600
aaggn                                                              605
```


```
<210> 113
<211> 616
<212> DNA
<213> Mouse
```


```
<400> 113
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
accgcggnga gaanncgttc cgctgtgncc gctgnncata cgcctctgct catctggata 120
acctgaaacg gcaccagcnc gtccacacag gagaaaagcc ctacaagtgc nccctctgtc 180
cgtatncntg tggaaacctg gccaacctca agcntnatgg tcgcatccac tctggtgaca 240
aacctttcg gtgtagcctt tgcaactacn gcngcancca gagtatgaac cncaaacgtc 300
atntgctgcn acacacgggc gagaagccct tccgctgtgc cacctgcgcc tataccacag 360
gccactgggg acaactacaa gcgtcatcag aaggtgcatg gncatggtgg aacaggangg 420
ctggtntctn tgcccctgag ggtgggcccc canctcatag cccaccctct gntttgagcn 480
ctcggggtcc agagcccngg gtgcngtggg tagcagggnn cttnattcag nctcaccttg 540
aantancnan ngttcntttn agnnggggggn ncctgggaat tannncccna angccttcnn 600
tgaattttta tnnnaa                                                  616
```


```
<210> 114
<211> 578
<212> DNA
```

<213> Mouse

<400> 114

```
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaanccnttc cgctgtgccc gctgtccata cgcctctgct catctggata 120
acctgaaacg gcancagcgc gtccacacag gagaaaagcc ctacaagtgc nccctctgtc 180
cgtatgnctg tggcaacctg gccaacctca agcgtcatgg tcgcatccac tctggtgaca 240
aacctttcg gtgtagcctt tgcaactaca gctgcaacca gagtatgaac ctcaaangtc 300
atatgctgcn acacangggc gagaanccct tccgntgtgc cacctgcgcc tataccacag 360
gncactggga caactacaag cgtcatcaga aggtgcatgg gcnatggtna gcanganggc 420
ctngtctctc tncccctgag ggttggnccc caactgatag ccnaaactct gtttnnanta 480
cnnggggtca ntagccctng gtgntactgg gtagcagggn tcntnattna ggtntacctt 540
gaaataactt gggnnctttt aaccnggggg ctctggga                          578
```

<210> 115
<211> 545
<212> DNA
<213> Mouse

<400> 115

```
gtgttctgcg tgattctact gggtgttgtg agagaaggtt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctataggtt acatttggga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga agtttaact 360
tgtgctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
tgtttactga cttttcataaa aatcatatat gtttatgggc agatatgtaa ctgttgtttg 480
caagacattt ccattaggtc caagaccggg aaataatggg cttaacaggg tatggtactg 540
gttta                                                             545
```

<210> 116
<211> 518
<212> DNA
<213> Mouse

<400> 116

```
gtctgagcct gccatcttgg gtcctgtggt ccccaggcgt ccgttgcggg aagttgtgct 60
ggtggcggag accgagtcac aggacgctcc cagtcccatc atggggttgg tgtcctttga 120
ggatgtagcc gtggacttca ccttggagga gtggcaggac ctggacgctg ctcagaggac 180
cctgtacagg gatgtgatgc tggaaaccta cagcagcctg gtgttcctgg acccctgcat 240
tgccaaacct aagttgatct tcaatttgga gcgtggattt gggccatgga gcctagcaga 300
agcttcaagc aggagcctcc caggtgtcca taacgtgagt actctgagtg acaccagcaa 360
gaaaattcct aagacacgtt tgcggcaact cagaaaaact aaccaaaaga caccaagtga 420
agacacgatt gaagcagaac taaaggctcg acaggaagtc tccaaaggga caacatcccg 480
tcatagaaga gcccccgtaa aatctttgtg ccgnaagt                          518
```

43

```
<210> 117
<211> 520
<212> DNA
<213> Mouse

<400> 117
gtgttctgcg tgattctact gggtgttgtg agagaaggtt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctataggtt acatttggga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
tgtgctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
tgtttactga ctttcataaa aatcatatat gtttatggca gatatgtaac tgttgtttgc 480
aagacattcc attaggtcaa agacagagna ataatggctt              520


<210> 118
<211> 545
<212> DNA
<213> Mouse

<400> 118
gtgttctgcg tgattctact gggtgttgtg aganaaggtt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctataggtt acatttggga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
tgtgctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
tgtttactga cttttcataa aaaatcatat atgtttatgg cagatatgta actggtgntt 480
gcaagacatt ccattagggt caaaggcnga ggaataattg gcttaacagg natgttactg 540
tttaa                                                   545


<210> 119
<211> 585
<212> DNA
<213> Mouse

<400> 119
gtctgancct gccatcttgg gtcctgtggt ccccnngcgt ccgntncngg aanttntgnt 60
tgttgcggan accnngtcac aagncagctc ccacatccca acntatgggg gttgtgncct 120
ttgagagana tatacncgtg natnacnnct tgaggagngn cannanctnt gaggctgttc 180
anagnngncn ctanangggg ntgatncngn anacctanag cagcctnnng tncctnnnga 240
ccnntntatt nanaactntg atnatcttca ntntngngng tcganntttg cnannatagc 300
```

```
ctagcagaag cttcttagca ggagcctccc aggtgtccat aangngngta ctctgagtgn 360
caccancang aanattcctn agaaacgttt gnngcgactc annaaaacta accacnaaga 420
caccaacntg aaganacgnt tgttgcagaa ctaaaggctc gncaggaagt ntctcttccg 480
gngggncanc ccgtcntnna tanagccccg ccaaatcnnt gttcggaagt canctgagaa 540
ncaagcatca gtnatncttc natnangggn ntgtnntctc nattt                 585
```

```
<210> 120
<211> 632
<212> DNA
<213> Mouse
```

```
<400> 120
gtctgagcct gccatcttgg gtcctgtggt ccccaggcgt ccgttgcggg aagttgtgct 60
ggtggcggag accgagtcac aggacgctcc cagtcccatc atggggttgg tgtcctttga 120
ggatgtagcc gtggacttca ccttggagga gtggcaggac ctggacgctg ctcagaggac 180
cctgtacagg gatgtgatgc tggaaaccta cagcagcctg gtgttcctgg accctgcat 240
tgccaaacct aagttgatct tcaatttgga gcgtggattt gggccatgga gcctagcaga 300
agcttcaagc aggagcctcc caggtgtcca taacgtgagt actctgagtg acaccagcaa 360
gaaaattcct aagacacgtt tgcggcaact cagaaaaact aaccaaaga caccaagtga 420
agacacgatt gaagcagaac taaaggctcg acaggaagtc tccaaggga caacatcccg 480
tcatagaaga gcccccgtaa aatctttgtg ccgcaagtca cagagaacca agnatcagac 540
atcatacaat gatgggaatc tctatgaatg taggactgcg agaaaatttt ctgtaataat 600
ttcaacctaa tttagcattn ccgaaggact ca                              632
```

```
<210> 121
<211> 595
<212> DNA
<213> Mouse
```

```
<400> 121
gtgttctgcg tgattctnct gggtgttgtg agagnnggtt ngtcnagctc agnnctccaa 60
acgtgtgtct tcgctggntg ctgtganttt ngctcaagca agctcagaac ttcacacntg 120
gatttagtcn ccnatgatga cgtgcntgtg aacttcnctc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gantctcaca 240
gctatnggtt acntttgggn agnacntacg attgaagncc nttttcaaac ttctagaagt 300
catggaaggt aatttnctc tgcaagcngn ggaganaatg cctatgaaga aagtttaact 360
tgtgctncaa gtagtncaga ncaccaatng ggtacaataa gcactgcttt cagtgatgga 420
tgtttnctga ctttcataaa antcanntat gttatggcag atntgtnacn gttgtttgcn 480
agacattccn ntaggncaaa gacagagaaa tatggcttaa cggnatgtta ctgttnaact 540
cagcctagta ngccatgcnn tancangtgt gagtgtcttc cgtcccanat cgctt     595
```

```
<210> 122
<211> 534
<212> DNA
<213> Mouse
```

<400> 122

```
gtgttctgcg tgattctact gggtgttgtg agagaaggtt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctataggtt acatttggga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
tgtgctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
tgtttactga ctttcataaa aatcatatat gtttatggca gatatgtaac tgttgtttgc 480
aagacattcc attaggtcaa agacagagaa ataatggctt aacaggtatg ttac       534
```

<210> 123
<211> 550
<212> DNA
<213> Mouse

<400> 123

```
gcagtcatga gagtttctgt gtgatgtgtt atgcgtgact ctactgggtg ttgtgagagg 60
aggttagtca agctcagaac tccaaacatg gatttactca cctatgatga cgtgcatgtg 120
aacttcactc aggaagagtg ggctttgctg gatgcttctc agaagagtct ctacaaaggt 180
gtgatggtag agacctanag gaatctcaca gctanaggtt acagttggga agaacataca 240
attgaagacc atttccaaac ttctagaagt cttggaaggt aattttcctc tgcaagctga 300
tgagaaaatg cctatgaaga aagtttaacg tgtgctacaa gtagtaaaga aaaccaatag 360
ggtacaataa gcactgcttt cagttatgga tgtttattga atttcataaa atcatatang 420
tctatggcag atatgtaatt attgtttgca agactttcca ttagttcaaa gacagagaaa 480
taatggctta acaggtatgt tactgnntaa atcaagccta gtagagccat gctgtacaag 540
tgcgantgtc                                                        550
```

<210> 124
<211> 591
<212> DNA
<213> Mouse

<400> 124

```
gcagtcatga gagtttctgt gtgatgtgtt atgcgtgact ctactgggtg ttgtgagagg 60
aggttagtca agctcagaac tccaaacatg gatttactca cctatgatga cgtgcatgtg 120
aacttcactc aggaagagtg ggctttgctg gatgcttctc agaagagtct ctacaaaggt 180
gtgatggtag agacctatag gaatctcaca gctataggtt acagttggga agaacataca 240
attgaagacc atttccaaac ttctagaagt cttggaaggt aattttcctc tgcaagctga 300
tgagaaaatg cctatgaaga aagtttaacg tgtgctacaa gtagtaaaga aaaccaatag 360
ggtacaataa gcactgcttt cagttatgga tgtttattga atttcataaa atcatatatg 420
tctatggcag atatgtaatt attgtttgca agactttcca ttagttcaaa gacagagaaa 480
taatgggctt aaccaggtat gttactgttt aaatcaagcc tagtagagcc atgctgtaac 540
aagtgcgant tgtcttcagt cccatatcgc cttaggccat tgcaaaaagg g          591
```

```
<210> 125
<211> 548
<212> DNA
<213> Mouse

<400> 125
ntcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacncc cagcaataag ttgactgtgg 420
acacggaagc tctgacccct tccagcaccc tctgtgaaaa cagtgtttcc gaagctatga 480
ccccagccaa agccgagtgg aaagtgnnac ccgaatctga cttctttggg acncgaggaa 540
agaaaacc                                                      548


<210> 126
<211> 538
<212> DNA
<213> Mouse

<400> 126
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcggcga agtctccctg cggataataa 180
cagcaacaac cattccttgg ggcaagcggc cgagcctcgg gccttgaggg gggcccccag 240
tgacctcccc cagagtctgg atacctctct cttcttcgga acctcggtgg ctggctacca 300
gcacagcccc ttggacatgg acgatgtctc cgccgggaac gtggggctct ttggctcctt 360
ggccctgaaa aactcaagcc tggagccgca gtttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgacccct tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ncccagccaa agccgagtgg aacgtgcacc ccgaatctga cttctttgga cacgagga   538


<210> 127
<211> 535
<212> DNA
<213> Mouse

<400> 127
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
```

```
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aacgtggcac cccgaatctg acttctttgg acacg        535
```

<210> 128
<211> 533
<212> DNA
<213> Mouse

<400> 128
```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg gccccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ncccagccaa agccgagtgg aacgtgcacc ccgaatctga cttctttgga cac         533
```

<210> 129
<211> 531
<212> DNA
<213> Mouse

<400> 129
```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg gccccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttntgacacn cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcancc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagttg aacgtgcacc ccgaatctga cntctttgga n          531
```

<210> 130
<211> 525
<212> DNA
<213> Mouse

<400> 130
```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gttcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
```

```
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgacccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aaagtggcac cccgaatctg acttt           525
```

```
<210> 131
<211> 518
<212> DNA
<213> Mouse


<400> 131
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgacccccc tccaagaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa aagccgagtt ggaacgtgca ccccgaat              518
```

```
<210> 132
<211> 505
<212> DNA
<213> Mouse


<400> 132
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgacccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtng aacgt                      505
```

```
<210> 133
<211> 521
<212> DNA
<213> Mouse


<400> 133
```

```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagcngcag ttttgacaac cagcaataag tgactgtgga 420
cacggaagct tgacccccttc agaccctctg tgaaaaagtg tctccgagta ctgacccagc 480
caaagccgag tggaacgtgc accccgaatc tgacttcttg g                      521
```

```
<210> 134
<211> 554
<212> DNA
<213> Mouse

<400> 134
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcancc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aacgtgcaac ccgaatctga cttcttggga cacgaggaag 540
aaanccagtt cggn                                                   554
```

```
<210> 135
<211> 529
<212> DNA
<213> Mouse

<400> 135
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tgggagcctc gcgggaagtc tccctgcgga taataacagc aacaaccatt 180
ccttggggca agcggccgag cctcgggcct tgaggggggc cccagtgac ctcccccaga 240
gtctggatac ctctctcttc ttcggaacct cggtggctgg ctaccagcac agccccttgg 300
acatggacga tgtctccgcc gggaacgtgg ggctctttgg ctccttggcc ctgaaaaact 360
caagcctgga gccgcagttt tgacacccag caataagttg actgtggaca cggaagctct 420
gaccccctcc agcaccctct gtgaaaacag tgtctccgag ctactgaccc cagccaaagc 480
cgagtggaac gtgcaccccc gaatctgact ctttggaca cgaggaaag             529
```

```
<210> 136
<211> 521
```

<212> DNA
<213> Mouse

<400> 136
```
ctcaccagcc cggggnagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc anggttccgc cgcggtgctg ganacggcct tggncanctc tggnntctng 120
cnactntnnn atnnagcnnn nangnanntn nngctgcnna tannaacagc nnnnaccatt 180
ccttggggna agcggncgag cctcgggcct tganggggggc ccccagtgac ctcccccaga 240
gtctggatac ctctctcttc ttcggaacct cggtggctgg ctaccagcac agcccttgg 300
acatggacga tgtctccgcc gggaacgtgg ggctctttgg ctcnttggcc ctgaaaaact 360
caagcctgga gcngcagttt gacacccagc aataagttga ctgtggacac ggaagctctg 420
accccctcca gcaccctctg tgaaaanagt gtctccgagc tactgacccc agcnaaagcc 480
gagtggaang tgcaccccga atctgacttc tttgggaaac g                      521
```

<210> 137
<211> 575
<212> DNA
<213> Mouse

<400> 137
```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtng 420
acacggaagc tctgaccccc tccagcaccc tctgtgaaaa aagtntctcc gagctactga 480
ncccagccaa agccgagtgg aacgtggcac cccgaatcng actttttttgg acacgaggaa 540
aggaaaccca gtttgggatt nttccancca acaag                            575
```

<210> 138
<211> 552
<212> DNA
<213> Mouse

<400> 138
```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc ttccagcacc ctctgtgaaa aaagtgtctc cgagctaatg 480
accccagcca aagccgagtg gaacgtggaa ccccgaatct gactttttttg gacacgagga 540
```

51

agaaacccng tt   552

<210> 139
<211> 554
<212> DNA
<213> Mouse

<400> 139
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag tttgacaccc agcaataagt tgactgtgga 420
cacggaagct ctgaccccct ccagcaccct ctgtgaaaac agtgtctccg agctactgac 480
cccagccaaa gnccgagtgg aacgtgcanc ccgaaattga ttttttttgga cacgaggaag 540
aaaacccgtt tngg   554

<210> 140
<211> 562
<212> DNA
<213> Mouse

<400> 140
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgggc cttgagggggg gcccccaggt ctggatacct 180
ctctcttctt cggaacctcg gtggctggct accagcacag ccccttggac atggacgatg 240
tctccgccgg gaacgtgggg ctctttggct ccttggccct gaaaaactca agcctggagc 300
cgcagttttg acacccagca ataagttgac tgtggacacg gaagctctga ccccctccag 360
caccctctgt gaaaacagtg tctccgagct actgacccca gccaaagccg agtggaacgt 420
gcaccccgaa tctganttct ttggacacga ggaagaaacc cagttcggat tctcccaccc 480
aacaggaagc catgggtctc agaaagacac agatcttatc acggtgactg gcancccgtt 540
tttggtatga cgactctgn ct   562

<210> 141
<211> 658
<212> DNA
<213> Mouse

<400> 141
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggnct tggtcaactc tggcatcttg 120
actattgatg tggnctctgt ganctcganc ctcgcgggaa gtntccctgc ggataataac 180

                         52

```
agcaacaacc attccttggg gcaatcggnc gagcctcggg ccttgagggg ggcccccagt 240
gacctncccc anngtntgga tncctctctc ttcttcngaa cctcggtggc tggctaccag 300
nncagcccct tggacnngga cgatgtctcn gccgggaacg tggggctctt tggctccntg 360
gccctgaaaa actnaagcct ggagccgcag ttcngacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagnaccc ctctntnaaa acagtgtctc ccgagctact 480
gattccagga aaaaagccga gtggaacgtg naannccgna tctgnctttt tggngacgcn 540
gaaaaaacca agttcgggat tcttccancc cancagggaa cncaatgggt ntagaaagga 600
cacaggtctt tatcacggtt acctggnaac ccggtntttg gtatnaaacc cnanttcn   658
```

```
<210> 142
<211> 639
<212> DNA
<213> Mouse
```

```
<400> 142
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctactag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag tttngacacc cagcaataag ttgactgtgg 420
acacggaagc tctgacccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccancnaa agccgagtgg aaagtggcan cccgaatctg actttttgga cacgangaag 540
naancnagtt cggattntcc aacccaanag ggaagccatg ggttcagnaa nncacagatc 600
ttatcacggt gactggcann ccgtttttggg attnaacgn                      639
```

```
<210> 143
<211> 550
<212> DNA
<213> Mouse
```

```
<400> 143
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag tttga cacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aagtgcaccc cgaatctgac ttctttggga cacgaggaag 540
aaacccagtt                                                       550
```

```
<210> 144
```

53

<211> 666
<212> DNA
<213> Mouse

<400> 144
gctcaccagc ccngggggcag agcgatctca gtggggccga gctcgtgtct ctgttctcgg 60
atgtgcctgg ccacggttcc gccgcggtgc tggacacggc cttggtcaac tctggcatct 120
tgactattga tgtggcctct gtgaactcga gcctcgcggg aagtctccct gcggataata 180
acagcaacaa ccattccttg gggcaagcgg ccgagcctcg ggccttgagg ggggcccca 240
gtgacctccc ccagagtctg gatacctctc tcttcttcgg aacctcggtg gctggctacc 300
agcacagccc cttggacatg gacgatgtct ccgccgggaa cgtggggctc tttggctcct 360
tggccctgaa aaactcaagc ctggagccgc agtttgacac ccagcaataa gttgactgtg 420
gacacggaag ctctgaccc ctccagcacc ctctgtgaaa acagtgtctc cgagctactg 480
acnccagcca aagccgagtg gaacgtgcac cccgaatctg acttctttgg acacgaggaa 540
gaaacccagt tcggattctc ccanccaaca ggaagccatt ggtccagaan gacacagatt 600
tatcacggtg actggcaccc cgtttttgga tgaaccgant tgctgttccc tgcctgncct 660
gtggnn 666

<210> 145
<211> 569
<212> DNA
<213> Mouse

<400> 145
tcaccagccc ggggcagagc gatctcagtg gggccgagct cgtgtctctg ttctcggatg 60
tgcctggcca ggttccgccg cggtgctgga cacggccttg gtcaactctg gcatcttgac 120
tattgatgtg gcctctgtga actcgagcct cgcggggaag tctccctgcg gataataaca 180
gcaacaacca ttccttgggg caagcggccg agcctcgggc cttgaggggg gccccagtg 240
acctccccca gagtctggat acctctctct tcttcggaac ctcggtggct ggctaccagc 300
acagcccctt ggacatggac gatgtctccg ccgggaacgt ggggntcttt ggctccttgg 360
ccctgaaaaa ctcaagcctg gagccgcagt tttgaacacc cagcaataag ttgactgtgg 420
acacnggaag ctctgaaccc ccctccaggc acccctntgt gaaaaacagt gttctccgag 480
gctactgacc cccagccaaa aggccgantt gggaaanntg gcaaccccgg aaattctgga 540
ncttctttg ggancacgga gggaagaaa 569

<210> 146
<211> 666
<212> DNA
<213> Mouse

<400> 146
ctcnccagcc cggggcanag cnatctcagt ggggccganc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg acacggcct tggtcaactc tggcancttg 120
actattgatg tggcctcngt gaagtcgagc ctcgcgggaa gtctccctgg ggntaataac 180
agcaacaacc attccttggg gcaannggcc gagcctcggg ccttgagggg ggccccant 240
gaccnncncc anngtctgga nacctcnctc ttcttcggaa cctcggtggc tgggctacta 300

```
gcanagcccc ttgnacatgg acgangtctc ngccgggaac gtngggctct ttgggtcctn 360
gnnccctgaa aaantcaagc ctggaagccg gagttnncnc agcncagcna ataagttgnc 420
tntggacacc gnaagcncng natcccttcn gcacccctct nntgaaaana gtgtcnccgg 480
agctactgtc cnncagnncn aagncngaat tggaacgtgn cacccngaan ttctnaactt 540
tttnngggac aacnaggnan cgnaacccct aagttcngca tttntnccca nagcaaaana 600
ggnananncc nttggggtct tcaganaagn gcccnatgat ttttaatcna ccgggngnaa 660
cttggc                                                            666
```

```
<210> 147
<211> 670
<212> DNA
<213> Mouse
```

```
<400> 147
tcaccagccc ggggcagagc gatctcagtg gggccgagct cgtgtctctg ttctcggatg 60
tgcctggcca cggttccgcc gcggtgctgg acacggcctt ggtcaactct ggcatcttga 120
ctattgatgt ggcctctgtg aactcgagcc tcgcgggaag tctccctgcg gataataaca 180
gcaacaacca ttccttgggg caagcggccg agcctcgggc cttgaggggg gccccagtg 240
acctccccca gagtctggat acctctctct tcttcggaac ctcggtggct ggctaccagc 300
acagcccctt ggacatggac gatgtctccg ccgggaacgt ggggctcttt ggctccttgg 360
ccctgaaaaa ctcaagcctg gagccgcagt tttgacaccc agcaataagt tgactgtgga 420
cacggaagct ctgaccccct ccagcaacct ctgtgaaaac agtgtcttcg agctaatgaa 480
cccaagccaa angccgantt ggaacgtgca nccccgnaat ctgaactttc ttttggancn 540
acgaagggaa agaaaacccc aaantttcng gnatttnttc cccaaacccca aaanaaggga 600
aanccccatt nggggttcct tcaggaaaaa gaccacccgg gantctttaa ttccaccggg 660
ggnaacttgg                                                        670
```

```
<210> 148
<211> 506
<212> DNA
<213> Mouse
```

```
<400> 148
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt ggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcaccc tctgtgaaaa cagtgtctcc gagctactga 480
ncccanncaa agccgagtgg aacgtg                                      506
```

```
<210> 149
<211> 536
```

<210> DNA
<213> Mouse

<400> 149
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gncctgaaaa actcaagnct ggagccgnag ttttnaacan cccagcaaat aagttgactg 420
nnggacacgg gaagctctnn accccctnc aggaacctct tgngnaaaaa ntgtctccga 480
ggctacttnn ccccaaggca aaancccngt nggaacgtgn naccccgnat ttttnt   536

<210> 150
<211> 515
<212> DNA
<213> Mouse

<400> 150
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ngagccgcag tttgaacacc agcaataag ttgactgtgg 420
acacggaagc tctgacnccc tccagcaccc tctgtgaaaa cagtgtctcc cgagctactg 480
accccagcca aagccgagtg gaaagtggca ncccg   515

<210> 151
<211> 400
<212> DNA
<213> Mouse

<400> 151
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctccccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccct tggacatgga cnatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaacctg gaccgcagct ttgacaccca   400

<210> 152

56

```
<211> 324
<212> DNA
<213> Mouse

<400> 152
gggtcgaccc acgcgtccgc tcaccagccc ggggcagagc gatctcagtg gggccgagct 60
cgtgtctctg ttctcggatg tgcctgncca cggttccgcc gcggtgctgg acacggcctt 120
ggtcaactct ggcatcttga ctattgatgt ggcctctgtg aactcgagcc tcgcgggaag 180
tctcctgcgg ataataacag caacaaccat tccttggggc aagcggccga gcctcgggcc 240
ttnagggggg ccccaattga cttccccaga gtctggatac ctctctcttt tcggaacctc 300
ggtggctggc tacnagnaag ccnt                                         324
```

```
<210> 153
<211> 569
<212> DNA
<213> Mouse

<400> 153
gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacaa 180
cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agattttga 360
atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
gaatgtgaca atccatgatc aatatagggg atgacaggta aagagagcaa acgttctcat 480
caccgaatgc tagttacttg ggttaaacca tagccttgat ggctttctac aaaactggta 540
gggacctgta gctttngggc agtttccat                                    569
```

```
<210> 154
<211> 549
<212> DNA
<213> Mouse

<400> 154
gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacaa 180
cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agattttga 360
atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
gaatgtgaca atccatgatc aatatagggg atgacaggt aaagagagca acgttctca 480
tcaccgnatg ctagttactt ggttaaacca tagccttgat ggctttctac aaaactgtag 540
agacactgt                                                          549
```

57

<210> 155
<211> 541
<212> DNA
<213> Mouse

<400> 155
gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacaa 180
cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agatttttga 360
atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
gaatgtgaca atccatgatc aatataggg atgacaggta aagagagcaa acgttctcat 480
caccgaatgc tagttacttg gttaaaccat agccttggat ggctttctac aaaactgtag 540
a   541

<210> 156
<211> 576
<212> DNA
<213> Mouse

<400> 156
cctagacgct tgtggaatgt gcgtctaggt gtagttactc attgtgtggt gtgtcctttg 60
ctccccttgc acgtcactcc tgtgtgcctg tggacactgc tctcgacagc ctcccgaccc 120
aaggaaagaa ccgcaaggac tttccagtac acttccacct gtggccgccc tcagctgtgg 180
gttagaaata aacactggac ctacatacta gagtgcctgg cctggctcag acgtgggcgt 240
gagcagtgtt gctgtttgaa agtgaaatct gaagctctag taactcttgg gttgcttagt 300
ttcagctttc cacatggaat aaataaaaca aaataaaaca aaagggaggt gaggttccgc 360
cctctgagat acagactctt taaagaggat ttttattatt ctgaacctag tttcatgaga 420
aaatatgttg agataaataa gtcaaacaat caaatgatgc agtgggggat gaaagcacat 480
acgtttccta atgtagncat tggggnatct tcnaatttta aaagaccgcc nggccccaat 540
ttttggncc ncccngaaac anaattgggg ggnccn   576

<210> 157
<211> 580
<212> DNA
<213> Mouse

<400> 157
cctagacgct tgtggaatgt gcgtctaggt gtagttactc attgtgtggt gtgtcctttg 60
ctccccttgc acgtcactcc tgtgtgcctg tggacactgc tctcgacagc ctcccgaccc 120
aaggaaagaa ccgcaaggac tttccagtac acttccacct gtggccgccc tcagctgtgg 180
gttagaaata aacactggac ctacatacta gagtgcctgg cctggctcag acgtgggcgt 240
gagcagtgtt gctgtttgaa agtgaaatct gaagctctag taactcttgg gttgcttagt 300

ttcagctttc cacatggaat aaataaaaca aaataaaaca aaagggaggt gaggttccgc 360
cctctgagat acagactctt taaagaggat ttttattatt ctgaacctag tttcatgaga 420
aaatatgttg aganaaataa gatcaaacaa tcaaatgatg ccagtgggga tgaaagcaca 480
tacgttccta gtgtagccat tggggtatcc tctattttaa agactggctt gtctcnaatt 540
ttagttccac caggaaacat aattgttggg cccaggggggn   580

<210> 158
<211> 537
<212> DNA
<213> Mouse

<400> 158
cacacccagg ggaagatcaa ggaactcatc tcaggcctga aagagagcac attgatggtg 60
ctggtgaact acatctactt taaaggcaaa tggaagaacc cctttgaccc gaatgataca 120
tttaagtccg agttctactt ggatgagaag aggtctgtga ttgtgtccat gatgaaaact 180
ggttacctga caactcccta cttccgggat gaggagctgt cctgcactgt ggtggagctg 240
aaatacacag gaaatgccag tgccatgttc atcctccctg accagggcag gatgcagcag 300
gtggaagcaa gcttacaacc agagaccctg aggaagtgga agaactctct gaagcccagg 360
atgatacatg agctccgcct gcccaagttc tccatctcca ccgactacag cctggagcac 420
atccttcctg agttgggcat caggggaagt cttctccaca caggctgacc tgtctgcaat 480
cacaggaacc aaggatctga gagtctctca ggtggtccac aaggctgtgc tggatgt   537

<210> 159
<211> 278
<212> DNA
<213> Mouse

<400> 159
gggtcgaccc acgcgtccgc acacccaggg gaagatcaag gaactcatct caggcctgaa 60
agagagcaca ttgatggtgc tggtgaacta catctacttt aaaggcaaat ggaagaaccc 120
ctttgacccg aatgatacat ttaagtccga gttctacttg gatgagaaga ggtctgtgat 180
tgtgtccatg atgaaaactg gttacctgac aactccctac ttccgggatg aggagctgtc 240
ctgcactgtg gtggagctga aatacacagg aaatgcca   278

<210> 160
<211> 518
<212> DNA
<213> Mouse

<400> 160
ggcacctcca ccacatggag ncccacagta gaaagtgggc cttggggaaa ctgctgntct 60
ttagtctctc gctggttcac ctacatggca gctatgctag cagtcacgtt ttgtttttccc 120
aatctgcctt catctcttta ccatctgagc cagagcctca ttgctacggc gctgccttcc 180
tgtggaccca gtgctcagtg tgcatggtgt nactcangca catctggggt ggagtagaga 240
ncacgagatg ggtgacctta ggangacnt cacccttacc agtgnatgac cagtgatact 300

```
tcaggaccat ttgtggatca agggccttat tataacgnnt gctctgcaca gaccctctct 360
atctccctga acctactcct tgtgccctgc cgtgggaacc ttttctgtcc tctncaaaca 420
nggctcatna nnaggactcc aaggggggaca gcaatccnga gaatccaaga accctncaga 480
atgactcact tcaggaacag annagtgtcc acactnaa                       518
```

<210> 161
<211> 532
<212> DNA
<213> Mouse

<400> 161

```
gtctagactg agacagatcc ttctccactc ttggccctga tgtgggcaca ggtgacagcg 60
gantganaga aatgattccc agagtaataa gattgtggct gccttcagct ctgttcctct 120
ctcaggtccc agagaccaga gggttttaa gaactgacca aagggaggac ttactcccat 180
ccagctgtca gggtgcagaa ttgaagttac tcttttccag gctgtgtccc actgcatggc 240
cccagcacta tcacaggcgc tgttggggaa tcgctcagtg tgtcatgtca atacgaggag 300
aaattcaaga ctaaggacaa attctggtgc agagggtcac tgaaggtact ctgtaaagat 360
attgtcaaga ccagcagctc agaagaagtt aggaatggcc gagtgaccat cagggaccat 420
ccagacaacc tcaccttcac agtgacctat gagagcctca ccctggagga tgcagacacc 480
tacatgtgtg cggtggatat atcactttt tatggctcct tgggggttcg an        532
```

<210> 162
<211> 653
<212> DNA
<213> Mouse

<400> 162

```
attactgctc tgtggactca ctctagtttt ttaccttaga cgaggcttct cctgttttg 60
aacggacacc agtggaaatg tcaaaaacag gttttgctga attttaaatt ctgaagacaa 120
aaacaacatg actaactaca tcggtaacca ttttaccctg atggaccatg agggatggca 180
agcattgttc tgacactggg cgtcgagctt ttctggantg ttcagtctga atgcttaaag 240
aacatatgga agggaaaccc ggactatgtc agactgccct ggtgtgtgtg ttgtcagagg 300
tactcgtgca atatccgtga tgtgcggact gtggggtgt gcatgcagac tcctggctca 360
ggcagtaggc ctgtgccctg ggaaagggga tncagattct agtcagttcg ctcgctcgta 420
caaccattgc gtatgtttct ggtctcacct gaggcgtcgg acatacttta cagaaagaac 480
ttggacccaa gtgtgccaaa cactaccgct aattttacac tactttccta tcaaatttg 540
gaatttatga ccatctgtag angcagtttc ctctccgaca aggtagatga aaaggnatgt 600
naatgtctgn actggctcgg .gcctgtccct cctgggattc ttcccanaag cct        653
```

<210> 163
<211> 502
<212> DNA
<213> Mouse

<400> 163

```
attactgctc tgtggactca ctctagtttt ttaccttaga cgaggcttct cctgtttttg  60
aacggacacc agtggaaatg tcaaaaacag gttttgctga attttaaatt ctgaagacaa 120
aaacaacatg actaactaca tcggtaacca ttttaccctg atggaccatg agggatggca 180
agcattgttc tgacactggg cgtcgagctt ttctgganag ttcagtctga atgcttaaag 240
aacatatgga agggaaaccc ggactatgtc agactgncct ggtgtgtgtg ntgtcagagg 300
tactcgtgca atatccgtga tgtgcggact gtggggtgt gcatgcagac tcctggctca 360
ggcagtaggc ctgtnccctg ggnaagggga tgcagattct agtcagttcg ctcgctcgta 420
caaccattgc gtangtttct ggtctcacct gaaggcgtcc ggacatactt tacagnnaga 480
acttggancc caagtggtgn ca                                          502
```

```
<210> 164
<211> 323
<212> DNA
<213> Mouse
```

```
<400> 164
gtcagaaaac aaaccgagcg atcacagcng canccgggng gcannancag gangangagg  60
agnnngagga ngaggcagat ttggagttgg gcagacnntg agnngagcta gctgcaggac 120
gctgnngggt tncanggctc cgcgntnntc cattcattaa gtaagctgcg tgaggatcgt 180
ngcggganna tatgntgggc antngcaaan tcnatncang nagtacngat naagagatgg 240
aaacaatacc nggaagnaag cagttgcatt ctnccatcct ngtnaccnag gtggagagca 300
actnaccang gggtttttn gng                                          323
```

```
<210> 165
<211> 553
<212> DNA
<213> Mouse
```

```
<400> 165
caccagggtt ccgaggcccc tcctgccaga ngccctgccc gcctggtcgc tatggcaaac  60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccataaa ctcactgggt 480
gcagtgattg gcattgcagt actgggaacc ctcgtggttg gccctgatag cactgttcat 540
tggctaccgc cag                                                    553
```

```
<210> 166
<211> 550
<212> DNA
<213> Mouse
```

<400> 166
```
caccagggtt ccgaggcccc tcctgccaga ggncctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccatnac tcacttgggt 480
gcagtgattg gcattgcagt actgggaanc ctcgtggtgg ccctgatagc actgttcatt 540
ggctaccgca                                                         550
```

<210> 167
<211> 572
<212> DNA
<213> Mouse

<400> 167
```
caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccataaa ctcactgggt 480
gcagtgattg gcattgcagt actgggaacc ctcgtggtgg ccctgatagc actgttcatt 540
ggctaccgcc agtggcaaaa ngggcaagga ac                                572
```

<210> 168
<211> 661
<212> DNA
<213> Mouse

<400> 168
```
caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccataac tcactgggtg 480
cagtgattgg cattgcagta ctgggaaccc tcgtggtggc cctgatagca ctgttcattg 540
gctaccgcca gtggcaaaag gcaaggaac atgagcactt ggcagtgctt acagcactgg 600
ggcggtggat gggtctgatt acgtcatgcc agatgtctct ccgngctata gtcactacta 660
```

n   661

<210> 169
<211> 632
<212> DNA
<213> Mouse

<400> 169
caccagggtt ccgaggcccc tcctgccaga ggcctgcccg cctggtcgct atggcaaacg 60
ctgtgtgcaa tgcaagtgta acaacaacca ttcttcctgc cacccatcgg acgggacctg 120
ctcctgcctg gcgggctgga caggccctga ctgctccgag gcatgtcccc caggccactg 180
gggactcaaa tgctcccaac tctgccagtg tcatcatggt gggacctgcc accccaggga 240
tgggagctgt atctgcacgc caggctggac tggacccaac tgcttggaag gctgcccacc 300
aagaatgttt ggtgtcaact gctcccagct atgtcagtgt gatctcggag agatgtgcca 360
cccagagact ggggcttgtg tctgtccccc aggacacagt ggtgcagact gcaaaatggg 420
aagccaggag tccttcacca taatgccac ctctcccgtg acccatnact cactgggtgc 480
agtgattggc attgcagtac tgggaaccct cgtggtggcc ctgatagcac tgttcattgg 540
ctaccgncag tggcaaaagg ggcaaggaac atgagcactt ggcagtggnt acagcactgg 600
ggcggcttgg atngctctga ttacgtcatg cc   632

<210> 170
<211> 536
<212> DNA
<213> Mouse

<400> 170
caccagggtt ccgaggcccc tcctgccaga ngccctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ntggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccataaa tcactgggtg 480
cagtgattgg cattgcagta ctgggaancc tcgtggtggg cctgatagca ctgttc   536

<210> 171
<211> 550
<212> DNA
<213> Mouse

<400> 171
caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180

```
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttggaa ggctgcccac 300
caagaatgtt tggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgccca cctctcccgt gacccataac tcactgggtg 480
cagtgattgg cattgcagta ctgggaaccc tcgtggtggc cctgatagca ctgttcattg 540
gnaccgccag                                                      550
```


```
<210> 172
<211> 590
<212> DNA
<213> Mouse
```


```
<400> 172
caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcatcatgg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ntggaccccca ctgcttggaa agctgcccac 300
caagaatgtt tggtgtcaac tgcttccanc tatgtcngtg ngatctcgga gagatgtgcc 360
acccagaaac ttggggcttn tgtctgtccc ccaaggacac agttgtgnca nactgccaaa 420
attggggaag ccangagttc tttaaccaat aaattgccca cttttccggn ggancccata 480
aaatttcnat tggggttcaa tttgatttgg caaattntcc aggtaacttg gggaaanccc 540
ctccgntggg ttgggncccc tnngaatnan gncnaccttg tttccaattt          590
```


```
<210> 173
<211> 575
<212> DNA
<213> Mouse
```


```
<400> 173
ctagtagttt tcctcctaca caagccagca agctatatcc agcaagagga atgggggaaa 60
gcaaggtga agcatttctt gcctttaaga cctcagcctc accaacagca ccagtgacaa 120
caaatccaat ggacgaaacc ctccctggaa gtatcaacat taggattctg atcccaaaat 180
tgatgatcat catcttcgga ctggtcggac tgatgggaaa cgccattgtg ttctggctcc 240
tgggcttcca cttgcgcagg aatgccttct cagtctacat cctaaacttg ccctggctg 300
acttcctttt cctcctcagt agtatcatag cttccaccct gtttcttctc aaagtttcct 360
acctcagcat catctttcac ttgtgcttta acaccattat gatggttgtc tacatcacag 420
ggataagcat gctcagtgcc atcagcactg agtgctgcct gtctgtcctg tgccccacct 480
ggtatcgctg ccancgtcca gtacatacat caactgtcat gtgtgctgtg atctgggtct 540
atccctgttg atctgcattc tgaatagcta tttcn                          575
```


```
<210> 174
<211> 510
<212> DNA
```

64

<210> Mouse

<400> 174
gccctcctga tcctcccaat gaatttggaa tatttaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggntg gtgccccca tagagagcgc tgaagattta gccaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaaggaac aatgtcttaa atactgngct 420
gcttagttgt aaatcggatc ccttgtccat tagactcacg ggagacataa caggtgagat 480
gttgagagca ctgaatttga actcctagaa   510

<210> 175
<211> 549
<212> DNA
<213> Mouse

<400> 175
gccctcctga tcctcccaat gaatttggaa tatttaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gctggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaaa tactgtgctg 420
cttagttgta atcggatcca ttgtccatta gactcacggg agacataac aggtgagatg 480
ttgagagcac tgaatttgaa ctcctagatt ttaatttcaa ccctgctata aagtgatatt 540
ggtcctngg   549

<210> 176
<211> 565
<212> DNA
<213> Mouse

<400> 176
gccctcctga tcctcccaat gaatttggaa tatttaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaaa tactgtgctg 420
cttagttgga aatcggatcc atgtccatta gactcacggg ggacataaca ggtgagatgt 480
tgagagcctg aatttgaaac tcctagattt aatttccaaa cccnggcnat aaagggata 540
ttggttcctt ggggccagtc anctt   565

65

```
<210> 177
<211> 306
<212> DNA
<213> Mouse

<400> 177
aaacgaatga ccatcattgg ggtgattctc agttttaggg ccatggccca agagggactt 60
caggaggttt tttctgccca ctgccctttt ctcatgggcc ccattgagtg cctgaaggag 120
tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
gcaggggtga gctgtgacat tgacccagcc ttggtagctg ccattgccaa tctgaaagct 240
gataactcat cccctgaaga agagtataag gtggcatgcc tactcttgat ctttttccttt 300
tttnng                                                         306


<210> 178
<211> 551
<212> DNA
<213> Mouse

<400> 178
aaacgaatga ccatcattgg ggtgattctc agttttaggg ccatggccca agagggactt 60
caggaggttt tttctgccca ctgccctttt ctcatgggcc ccattgagtg cctgaaggag 120
tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
gcaggggtga gctgtgacat tgacccagcc ttggtagctg ccattgccaa tctgaaagct 240
gataatcatc ccctgaagaa gagtataagt gggcatgcta actcttgatc tttcttgctg 300
tttccctccc atccttgcca ntgacccgtc ttcctttctt cagcattgag aaagatggct 360
acaacaacaa catccactgt ttgaccaaag ccatcattca ggtgtctgct ggcctcttta 420
actctggaac aaacaaagaa cattgaaacg cancctcaaa gagtttctgg tgggnggctc 480
tgtaagcctc ttggaagctg gggcaagggg actgacaagc ttcnaaaccn ggaaattcgn 540
gaatccattt c                                                   551


<210> 179
<211> 580
<212> DNA
<213> Mouse

<400> 179
aaacgaatga ccatcattgg ggtgattctc agttttaggg ccatggccca agagggactt 60
caggaggttt tttctgccca ctgccctttt ctcatgggcc ccattgagtg cctgaaggag 120
tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
gcaggggtga gctgtgacat tgacccagcc ttggtagctg ccattgccaa tctgaaagct 240
gataactcat cccctgaaga agagtataag gtggcatgcc tactcttgat ctttcttgct 300
gtttccctcc cactccttgc cactgacccg tcttccttct tcagcattga gaaagatggc 360
tacaacaaca acatccactg tttgaccaaa gccatcattc aggtgtctgc tgccctcttc 420
actctgtaca acaagaacat tgaaacgcac ctcaaagagt tctggtggt ggcctctgtc 480
```

66

agcctcttgc agctgggcca ggagactgac aagctcaaaa ccagaaatcg tgaatccatt 540
tctctgctca tgcgcttggt ggtggaggag tcanccctcn   580

<210> 180
<211> 502
<212> DNA
<213> Mouse

<400> 180
tgctacatcg ccagtgaacg ggtactttgg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttatc ccagctatgg tgtgtggcac 120
tgcattcttc atcaactttta tagccattta ttaccatgcc tctagagcca ttccttttgg 180
aacaatggtg gccgtttgtt gcatctgttt ctttgttatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgtcgggtca gcccaacttc ccttgtcgtg tcaatgccgt 300
gcctcgtccc atcccggaga aaaaatggtt tatggagcct gcagttattg tttgcctggg 360
aggaattta cctttggat caatctttat tgaaatgtac ttcatcttca cgtccttctg 420
ggcatataag atctactatg tctatggctt catgatgctg gtgctggtca tcctgtgcat 480
tgtgactgtc tgtgtgacca tt   502

<210> 181
<211> 557
<212> DNA
<213> Mouse

<400> 181
tgctacatcg ccagtgaacg ggtactttgg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttatc ccagctatgg tgtgtggcac 120
tgcattcttc atcaactttta tagccattta ttaccatgcc tctagagcca ttccttttgg 180
aacaatggtg gccgtttgtt gcatctgttt ctttgttatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgtcgggtca gcccaacttc ccttgtcgtg tcaatgccgt 300
gcctcgtccc atcccggaga aaaaatggtt tatggagcct gcagttattg tttgcctggg 360
aggaattta cctttggat caatctttat tgaaatgtac ttcatcttca cgtccttctg 420
ggcatataag atctactatg tctatgggct tcatgatgct ggtgctggtc atcctgtgca 480
ttgtgactgt ctgtgtganc attgtctgca catacttccg gctaaacgca gaggattaca 540
ggtggcagtg gacgagt   557

<210> 182
<211> 661
<212> DNA
<213> Mouse

<400> 182
tgctacatcg ccagtgaacg ggtactttgg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttatc ccagctatgg tgtgtggcac 120
tgcattcttc atcaactttta tagccattta ttaccatgcc tctagagcca ttccttttgg 180

```
aacaatggtg gccgtttgtt gcatctgttt ctttgttatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgtcgggtca gcccaacttc ccttgtcgtg tcaatgccgt 300
gcctcgtccc atcccggaga aaaaatggtt tatggagcct gcagttattg tttgcctggg 360
aggaatttta cctttggat caatctttat tgaaatgtac ttcatcttca cgtccttctg 420
ggcatataag atctactatg tctatggctt catgatgctg gtgctggtca tcctgtgcat 480
tgtgactgtc tgtgtgaacc attgtctgca catacttcct gctaaaacgc agaggattac 540
aggtggcagt ggacgagttt ccgtctgngg gggtgaccgg ggtntaaggt taaanngacc 600
cccttttaac aanaaatttc ttcaaaaacc aagatgtntg ggttatttcc aaaaatcatt 660
t                                                              661
```

```
<210> 183
<211> 522
<212> DNA
<213> Mouse
```

```
<400> 183
cctaagtcca ttggaaaaca aaatatttac attatgattc ataacagtag ggaaattaca 60
gttaagtagc aacaaaaata attttatatt tggggtcact acagcatggg gactgtattg 120
aaaggatagc agcatcagga aggttaaaaa ctgccggtct agaagaaagc attgggtctc 180
ttggaactag agttatagat gcttagaacc tccgtgttgc ttctgtaagt caacctcctt 240
agtcctatga aagtgctata taatgatgtt tgtgcctcat tggtcttgcc aaaatgatat 300
aaaagtatgt atggatgatt ttgttcttat acactagaac atgtgttgcc atatcttata 360
aactatgtct actgatatat tacactggta gctatgtaca cacagaactc agttgtctgc 420
tcaggaggtg gtagggatag ttgagagcca gtactcactc actatggacc ttacttaatc 480
ctctcctagt taatccttct ccaaatctct taacttgaca gg                  522
```

```
<210> 184
<211> 512
<212> DNA
<213> Mouse
```

```
<400> 184
cctaagtcca ttggaaaaca aaatatttac attatgattc ataacagtag ggaaattaca 60
gttaagtagc aacaaaaata attttatatt tggggtcact acagcatggg gactgtattg 120
aaaggatagc agcatcagga aggttaaaaa ctgccggtct agaagaaagc attgggtctc 180
ttggaactag agttatagat gcttagaacc tccgtgttgc ttctgtaagt caacctcctt 240
agtcctatga aagtgctata taatgatgtt tgtgcctcat tggtcttgcc aaaatgatat 300
aaaagtatgt atggatgatt ttgttcttat acactagaac atgtgttgcc catatcttat 360
aactatgtct actgatata ttacactggt agctatgtac acacagaact cagttgtctg 420
ctccaggagg tggtaggggt agttgagagc cagtactcac tcactatgga ccttacttaa 480
tcctctccta gttaatcttc tccaaatctc tt                             512
```

```
<210> 185
<211> 572
<212> DNA
```

68

<210> Mouse

<400> 185

```
tgaggtctgt gcccgaccca tctacccggg ccttgatgct cttggccttg ttaactctct 60
ttgccttgct gagccggctc actggctcca ggagctcagg gagccacctg gaagccaagg 120
tgagagggaa gagcttagag ggaggcagag gcgagcagcc aagatgccca ggagcatgga 180
agaagagtga caagggcgtc cccaagagac accctcaccg taccaaagag ctgagctgct 240
tctgggtctc acggacctcc ttgcagcccc cttgcccttt ccttgccttg tgtccggaac 300
cttcacacct ttaccccctgc gctancccctg gctgagagga gagaacctgt cctctgccgg 360
tgctcagtca agtgatggct ccctgccctt ctgtgctccc agcctgcctc ccccagggca 420
ggttggagnc ctcagcccctg gcttctgtct aagccagcaa ccacttggcc ngcttgatct 480
tccgtggatg attaaacctg ctgctttcct taanacaaag gcctgcccca gggtttaaag 540
ctcctggttt tgaccattnc cccnnnccaa aa                                  572
```

<210> 186
<211> 585
<212> DNA
<213> Mouse

<400> 186

```
attcgggttg ccgccgctca cccacnncnc ctgtngncnc cgtgtgtccn actctccctg 60
ngtnctccgg gccaaggngg gccntgnttc ttcaggctgg naccccgag ctcngntggn 120
gttgcncgtg cccccgggcc tcaacnaatt ggangcggta gagggngnag nagtggtgct 180
ccccgcctgg tacncgntgg cacgggaggn gtcgtggtcc cncccccggg aggtgcccat 240
cctgatctgg ttcttggaac nngaagggna ggnaccnnac cnggtgttgt cttacnttna 300
tggagtcntg ncnnntnaac ctggcacagc cctggtccac tctatctctt cncggaatgt 360
gtccctgcgc ctgggggggac tccnggaggg ngactctggg acttaccgct gttctgtcaa 420
tgtgcngnat gatgaaggna aangtatagg ccnnagcatt aaaagcntag agtcaaagtg 480
ctgggtcctc aagntcccca ttctgtagtt naaagggtgt ncctaantt ggggancaat 540
tggancctga actgnanangt ccccnaaggg gtaaacctta tngtt          585
```

<210> 187
<211> 564
<212> DNA
<213> Mouse

<400> 187

```
attcgggttg ccgccgctca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
agtactccgg gccaaggagg gccatgattc ttcaggctgg aaccccgag accagcttgc 120
tgcgggtttt gttcctggga ctgagtaccc ttgctgcctt ctcccgagct cagatggagt 180
tgcacgtgcc cccgggcctc aacaaattgg aagcggtaga gggagaagaa gtggtgctcc 240
ccgcctggta cacgatggca cgggaggagt cgtggtccca ccccgggag gtgcccatcc 300
tgatctggtt cttgaacaa gaagggaagg aaccaaacca ggtgttgtct tacattaatg 360
gagtcatgac aaataaacct ggaacagccc tggtccactc tatctcttca cggaatgtgt 420
ccctgcgcct gggggcactc caggagggag actctgggac ttaccgctgt tctgtcaatg 480
tgcagaatga tgaagggcaa aagtttaggc cacagcattc aaagcattag agcttcnaaa 540
```

tgctngttcc ctccagctcc ttcc   564

<210> 188
<211> 571
<212> DNA
<213> Mouse

<400> 188
attcgggttg ccgccgctca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
agtactccgg gccaaggagg gccatgattc ttcaggctgg aaccccgag accagcttgc 120
tgcgggtttt gttcctggga ctgagtaccc ttgctgcctt ctcccgagct cagatggagt 180
tgcacgtgcc cccgggcctc aacaaattgg aagcggtaga gggagaagaa gtggtgctcc 240
ccgcctggta cacgatggca cgggaggagt cgtggtccca cccccgggag gtgcccatcc 300
tgatctggtt cttggaacaa gaagggaagg aaccaaacca ggtgttgtct tacattaatg 360
gagtcatgac aaataaacct ggaacagccc tggtccactc tatctcttca cggaatgtgt 420
ccctgcgcct gggggcactc caggagggag actctgggac ttaccgctgt tctgtcaatg 480
tgcagaatga tgaaggcaaa agtatanggc acagcatcaa aagcatagag cncaaagtgc 540
tgggtnctcc agtcctccat ctgtaantta a   571

<210> 189
<211> 533
<212> DNA
<213> Mouse

<400> 189
attcgggttg ccgccgctca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
agtactccgg gccaaggagg gccatgattc ttcaggctgg aaccccgag ctcagatgga 120
gttgcacgtg cccccgggcc tcaacaaatt ggaagcggta gagggagaag aagtggtgct 180
ccccgcctgg tacacgatgg cacgggagga gtcgtggtcc accccccggg aggtgcccat 240
cctgatctgg ttcttggaac aagaagggaa ngaaccaaac caggtgttgt cttacattaa 300
tggagtcatg acaaataaac ctggaacagc cctggtccac tctatctctt cacggaatgt 360
gtccctgcgc ctggggggcac tccaggaggg agactctggg acttaccgct gttctgtcaa 420
tgtgcagaat gatgaangcc aaagtatagg ccacagcat caaaagcata gagctcaaag 480
tgctgggtcc tccagctctt caatcctgta gtttaagggg gtancctatg tcg   533

<210> 190
<211> 510
<212> DNA
<213> Mouse

<400> 190
gccctcctga tcctcccaat gaatttggaa tatttaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggntg gtgcccccca tagagagcgc tgaagattta gccaagcaga 240

70

```
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaaggaac aatgtcttaa atactgngct 420
gcttagttgt aaatcggatc ccttgtccat tagactcacg ggagacataa caggtgagat 480
gttgagagca ctgaatttga actcctagaa                                   510
```

<210> 191
<211> 549
<212> DNA
<213> Mouse

<400> 191
```
gccctcctga tcctcccaat gaatttggaa tatttaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gctggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaaa tactgtgctg 420
cttagttgta atcggatcca ttgtccatta gactcacggg gagacataac aggtgagatg 480
ttgagagcac tgaatttgaa ctcctagatt ttaatttcaa ccctgctata aagtgatatt 540
ggtcctngg                                                         549
```

<210> 192
<211> 669
<212> DNA
<213> Mouse

<400> 192
```
tcgagaaccc tggcactaga gctgccctgg gtgaaagctg gggactctgg acactacact 60
tgccaagcag agaataggct gggctcccag caacataccc tggacctctc tgtgctgtac 120
cccccacagg acctgagagt gactgtttcc caagcaaaca ggacagtgtt ggaaatcctc 180
aggaatgcca tctccctccc agtcctggag ggccaaagcc tgtgcctagt ctgtgtcacc 240
tatagcaatc ccccagccaa tgtgagttgg gcttgggtga cacagaccct gatcccaatc 300
cagtcttcan agcctggggt cctggagctg cctctggtcc agagagaaca tgaaggagaa 360
ttcacctgtg ctgcacagaa cccactgggt gcccagcgca tctctctgag cctctctgtg 420
cactacccgc cccagatgtc cagcccctcc tgctcctggg aggccaaggg tctgcactgc 480
aactgctcct ccagagcctg gcctgccccc ttcctgcgct ggcggctggg ggaggggctg 540
ctgaagggga acagcagcaa tgccttcttt cacagtcact ttcagctcac ttggacctgg 600
gtcaanagct cctgaagctc ctttcaggag ctgggggcca nccttggctn acntttgaag 660
tcctggaaa                                                         669
```

<210> 193
<211> 553
<212> DNA
```

<213> Mouse

<400> 193
anatggtgga ggactantac aanggcatca gacagatggt gcaggtcagc gaccaggaca 60
tgaatacgca cttggnagag atttcccggg ctcacacaga ctccctgaac acactcgtgg 120
ccctacacca gctctaccaa tacacacaga agtactatga tgagatcatc aatgctctgg 180
aggaggaccc tgcagcccaa aagatgcaac tggccttccg cctacagcag attgctgctg 240
cgcttgagaa taaggttaca gacctctgac cgtcaatgcc gcctcaggat gcaggtgtgt 300
ggtaccatgg ccttgggcag cccgttggcc tgagatggca ctggctgtag ccgggctctt 360
ctctctctcc agtagaggat gcacccaagg catctggagt gggtgtggtg aacccacctc 420
ttgtagactg tagcgtcttt ctcctgagca atactgcccg ggcgcccgag tcagcaccag 480
ctccttttcca atgggcacca gcatcgggtg ttctctgtgt tgtcncctga gcaattcgca 540
aatgtgncct tan   553

<210> 194
<211> 549
<212> DNA
<213> Mouse

<400> 194
anatggtgna ggnctantac aanggcatca gananatngt gcaggtnagc gaccaggaca 60
tgaatacgca cttnnnagag atttcccggg ctcacacaga ctccctgaac acactcgtgg 120
ccctacacca gctctaccaa tacacacaga agtactatga tgagatcatc aatgctctgg 180
aggaggaccc tgcancccaa aagatgcaac tggccttccg cctacagcag attnctgctg 240
ngnttggana anaaggttac agacctctga ccgnccaatg gccggctcag ganncccggg 300
tgnngtacca tnggcnttgg aanccngttn gcctnagang gnnctnggtg caaanggggc 360
tcttaaatcc nanagnnnng ggggcaccca ggnancccnn cctgggnagg gcnaanncnn 420
nnttnaacnt tgnagggaaa nttncnggc ataaaaaccg ggtncccaan aacccccncn 480
cccttgggnn gggtgaaaan tngggnnaaa atnnnncccc ccccggngtn acngggggaan 540
acncncttt   549

<210> 195
<211> 525
<212> DNA
<213> Mouse

<400> 195
aaagctttgt gtgtacaagg acttcaagaa gcacggtgcc caaggaagat ttgttgctct 60
gtaccttttg gggatgttta tcccatatct ttacgggctc tacctcatct gggctgtgtt 120
tgagatgttc actcctatcc tgggaagaag cgggtcggag atcccccccg acgttgtgct 180
ggcctccatc ctggctgtct gtgtgatgat cctctcttcc tattttatta ccttcatcta 240
ccttgtgaac agcacaaaga aaaccattct gactctaata ctggtgtgcg cggtcacctt 300
cctccttgtc tgcagtggag ccttttttccc atatagttct aatcccgaga gtccaaagcc 360
aaagagagtg tttcttcagc acgtgagtag aactttcat aacttagaag gaagcgtagt 420
aaaaagagac tctggaatat ggntcaatgg gtttgattat actggaatgt ctcacgtaac 480
ancctcacat ttcctgagat caacgncaca atccgagctc actgg   525

72

<210> 196
<211> 550
<212> DNA
<213> Mouse

<400> 196
```
gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
ctgtgctaaa agtacccaga agtgctcctc gtgcgccccc ataatcggag agtatgctgg 120
agaggttttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
tgtttggctg acctacagat accggaacca gaaagaccct cgcgccaacc cgagtgcttt 240
cctttgacga gaagacaaag aagacctttc ctctgttgat cttgttttct ttctctaatc 300
tcaaattaaa ctaatttgtt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt tttctttcca 420
ttgctaaaaa agcaatcgaa gttccccata ttccctggcc ctcagtggtc cctggaatct 480
actgttgttg gggtctggca ctgtccaccg ggggccttct tagcattttt acctgctgga 540
aaatggggga                                                   550
```

<210> 197
<211> 576
<212> DNA
<213> Mouse

<400> 197
```
gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
ctgtgctaaa agtacccaga agtgctcctc gtgcgccccc ataatcggag agtatgctgg 120
agaggttttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
tgtttggctg acctacagat accggaacca gaaagaccct cgcgccaacc cgagtgcttt 240
cctttgacga gaagacaaag aagacctttc ctctgttgat cttgttttct ttctctaatc 300
tcaaattaaa ctaatttgtt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt ttcctttcca 420
ttgctaaaaa agcantcgaa gttccccata ttccctggcc ctcagtggtc ccctgtaatc 480
tactgttgtt ggggtctggc actgtnccac cgnggccttt cttaggaatt ttttacctgg 540
ctggnaaact gtgttatggg caccctggg gnaaaa                         576
```

<210> 198
<211> 590
<212> DNA
<213> Mouse

<400> 198
```
gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
ctgtgctaaa agtacccaga agtgctcctc gtgcgccccc ataatcggag agtatgctgg 120
agaggttttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
tgtttggctg acctacngat acnggaacca gaaagaccct cgcgccaacc cgagtgcttt 240
```

73

```
cctttgacga gaagacaaag aagacctttc ctctgttgat cttgttttct ttctctaatc 300
tcaaattaaa ctaatttgtt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt tttctttcna 420
ttgcnaaaaa agcaatcgaa gttccccata ttccctggcc ctnantggtn ccnggaaatc 480
tantgntgnt ggtgnctggc antgtcaanc gnggnctttt tagnantttt cctgctgtaa 540
actgtgaatg ggccccgggg gnagatgaat tggnccngat cttcatctnn         590
```

<210> 199
<211> 598
<212> DNA
<213> Mouse

<400> 199

```
gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
ctgtgctaaa agtacccaga agtgctcctc gtgcgccccc ataatcggag agtatgctgg 120
agaggttttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
tgtttggctg acctacagat accggaacca gaaagaccct cgcgccaacc cgagtgcttt 240
cctttgacga gaagacaaag aagacctttc ctctgttgat cttgttttct ttctctaatc 300
tcaaattaaa ctaatttgtt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt tttctttcca 420
ttgctaaaaa aagcaatcgn ngttccccat attccctggc cctcagtggg ncctgtaatc 480
tactgttgtt gggtgtctgg nactgtccaa acgtggggct ttcttaggca ttttttaaccc 540
ngctggtaaa actgtgtaag ggcacccctg ggtaagatga atattttgan ccccccana 598
```

<210> 200
<211> 546
<212> DNA
<213> Mouse

<400> 200

```
caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
tcctcaggga ggaagccagg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
agggattctt ccgccgcagt gtcatcaagg gagcacgcta tgtctgccac agcggtggcc 360
actgccccat ggacacctac atgcggcgga aatgccagga gtgtcgactt cgcaaatgcc 420
gccagnaggc atgagggang agtgtgtgct gtcagaagaa cagattccgc ttgaagaaac 480
tgaagcggca agaagaggaa caggctcaag ccatttcggt gtncccaagg gtgtcctcac 540
ctcctn                                                           546
```

<210> 201
<211> 532
<212> DNA
<213> Mouse

<400> 201
caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
tcctcaggga ggaagccagg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
agggattctt ccgccgcagt gtcatcaagg gagcacgcta tgtctgccac agcggtggcc 360
actgccccat ggacacctac atgcggcgga aatgccagga gtgtcgactt cgcaaatgcc 420
gccaggaggc atgagggagg agtgtgtgct gtcagaagaa cagatccgct tgaagaaact 480
gaagcggcaa gaagaggaac aggctcaagc cacttcggtg tncccaaggg tn   532

<210> 202
<211> 694
<212> DNA
<213> Mouse

<400> 202
caacggagtt gtggnngacn gnacctcaag ntgcnggngn ccngggaggc aacacttgcn 60
tcctcngggn ggaagccngg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcagccga gcctacngcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctggggaac gagctgtgcn 240
gtgtctgtgg ggacaaagcc tctggcttcc nttacnacgt gctgagctgc gagggctgcn 300
agggattctt ccgccgcagt gtcatcnagg gagcncgcta tgtctgccac agcggtggcc 360
nctgccccat ggacacctac ctgcggcgga aatgccaggn gtgtcgactt cgcaaatgcc 420
gccaggaggg cntgagggag gagtgtgtgc tgtcaagang aacagatccg cttnaangaa 480
actgaaagcg ggcangaaag aaggaaccng ggntcaaagc cacttcgggt tggtnccccc 540
aangggtgtt ccttcanctt cccttcaaan ttccttggcc accaaggntt aaggccccaa 600
naagccaagc cttggggcaa ttaattcnga agaaaacctn ggttgggctt gcccccaagg 660
aaaccaattn ttaaanaagg ggggctncct tttt   694

<210> 203
<211> 658
<212> DNA
<213> Mouse

<400> 203
caacggagtt gtggangacn gaacctcaag atgcnggaga ccngggaggc aacacttgcn 60
tcctcaggga ggaagccngg atgccccagt caactggggt tnctttaggg atagggttgg 120
agtcngcaga gcctacagcc ctgctcccca gggcagagac cctcccngag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attncnacgt gctgagctgc gagggctgcn 300
ngggattctt ccgccgcngt gtcntcnagg gagcncgctn tgtctgccac ngcggtggcc 360
actgcccncnt ggncacctac atgcggcgga aatgccngga gtgtcgactt cgcaaatgcc 420
gccnggnggg cntgagggag gagtgtgtgc tgtcagaaga acngatccgc ttgnaganac 480
tgaagcggca agaagnggaa cagggctcaa gccacttcgt gttccccana gggtgntcct 540

75

```
caactcctta agttccttgc caaaagttca ggcccaanag gaagntgggc cattnattcg 600
aagaacnctt ggttggnctg ccccangaaa cnattgttaa cangggggct cccttttt   658
```

<210> 204
<211> 578
<212> DNA
<213> Mouse

<400> 204
```
caacggngtt gtggaagnca gnncctcaag ntgcaggnga ccagggaggc aacacttgcn 60
tcctcaggga ggaagccngg ntgccccagt caactggggt tnctttaggg atagggttgg 120
cgtcngcnga gcntacngcc ctgctcccca nggcngngnc cctcncagng ccgacagagc 180
ttcgtccaca aaagcggnaa aagggccnag nccccaaant gctgggganc gagntgtgna 240
gtgtctgtgg ggacnnagnc tctggcttcc attacnangt gctgagctgn ganggctgca 300
agggattctt ccgccgnagt gtcatcaagg gagnacgcta tgtctgncac ngcggtggtc 360
actgccccat ggnnacctat tgcggcggaa tgncangagt gtcgattngc aaatgccgna 420
gnggcntgaa ngaagagtgt ntgctgtnaa nnaaacagan ccgcttgang aaaatgcngn 480
ggnaanagta gtacnggggt aagccncttt cggntncccn agggtgtcct aanncctna 540
gntcctgcaa nngntnnngc caaaagaant gggatttt                        578
```

<210> 205
<211> 538
<212> DNA
<213> Mouse

<400> 205
```
caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
tcctcaggga ggaagccagg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
agggattctt ccgccgcagt gtcatcaagg gagcacgcta tgtctgccac agcggtggcc 360
actgccccat ggacacctac atgcggcgga aatgccanga gtgtcgactt cgcaaatgcc 420
gccaggaggc atgangnagg agtgtgtgct gtcagaagaa cagatccgct ttnaagaaac 480
tgaagcggca anaanangaa cangctcaag ccatttggtg tncccnaang gtgttctt   538
```

<210> 206
<211> 532
<212> DNA
<213> Mouse

<400> 206
```
caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
tcctcaggga ggaagccagg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcancaga gcctacagcc ctgntcccca gggcagagac cctcccagag ccgacagagc 180
```

76

```
ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctgggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
aagggattct tccgccgcag tgtcatcaag gggatcacgc tatgtctncc acagcggtgg 360
gcaactgccc catgggacac ctaaatgccg cggaaatgcc cangagtntc gacnttgnna 420
aatgccgcca ggagggcatt anggacgatt tnttgctttc anaaagaaca natcccgctt 480
taaagaaact taaagcggca anaagaagga aacagggctc taggccncnt ct      532
```

```
<210> 207
<211> 521
<212> DNA
<213> Mouse
```

```
<400> 207
gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtacgccg tcaacatcac tactgacttc 120
ttcaaccgaa ccaagtaagt gaggaaccca cccttgggga cagcaggtgg gtctcagccc 180
acactcctct gggctggcac tcacctttttc cactcctcca ggtatgaact gggcccccgcc 240
ctctacttgg gctggagtgc ctccctgctc tccatcctgg gcggcatctg tgtcttctcc 300
acctgctgct gttcctccaa ggaggaacca gccaccaggt gaggggatga gcgggaggag 360
ggtatggagt gattaccaca tcatcctatg acccctgtga ccccaccttc ctcttcatcc 420
cacagggctg ggcttcccta caagccttct acggttgtga taccccgtgc cacctcggat 480
gagagtgaca tcagcttcgg taaatatggc aaaaacgcat n      521
```

```
<210> 208
<211> 546
<212> DNA
<213> Mouse
```

```
<400> 208
gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtacgccg tcaacatcac tactgacttc 120
ttcaacccac tgtatgctgg aaccaagtaa gtgaggaacc cacccttggg gacagcaggt 180
gggtctcagc ccacactcct ctgggctggc actcaccttt tccactcctc caggtatgaa 240
ctgggcccCg ccctctactt gggctggagt gcctccctgc tctccatcct gggcggcatc 300
tgtgtcttct ccacctgctg ctgttcctcc aaggaggaac cagccaccag tgaggggat 360
gagcgggagg agggtatgga gtgattacca cagcatccta tgaccCctgt gaccccacct 420
tcctcttcat cccacagggc tgggcttncc tacaagcctt ctacggttgt gataccccgt 480
gcaactcgga tgagagtgac atcaagcttc ggtaaatatg gcaaaaaacg catacgtngt 540
aggaag      546
```

```
<210> 209
<211> 571
<212> DNA
<213> Mouse
```

<400> 209

```
gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtacgccg tcaacatcac tactgacttc 120
ttcaacccac tgtatgctgg aaccaagtaa gtgaggaacc caccccttggg gacagcaggt 180
gggtctcagc ccacactcct ctgggctggc actcacctttt tccactcctc caggtatgaa 240
.ctgggccccg ccctctactt gggctggagt gcctccctgc tctccatcct gggcggcatc 300
tgtgtcttct ccacctgctg ctgttcctcc aaggaggaac cagccaccag gtgaggggat 360
gagcgggagg agggtatgga gtgattacca cagcatccta tgacccctgt gaccccacct 420
tcctcttcat cccacagggc tgggcttccc tacaagcctt ctacggttgt gatacccgt 480
gccacctcgg atgagagtga catcagcttc ggtaaatatg gcaaaaacgc atacgtgtag 540
gaagctctgg cctgctggac accatttctt g                                 571
```

<210> 210
<211> 568
<212> DNA
<213> Mouse

<400> 210

```
ggtgtggggg gggttgtggc gtgggagggg cacataggac cagatcctca gacctttttc 60
tccaggagcc tgtgggatgg tggctanctc gtggtacgcc gtcaacatca ctantgactt 120
cttcaacccca ctgtatgctg gaaccaanta agtgangaac ccaccccttng ggacagcagg 180
tgggtctcag cccacactcc tctgggctgg cactcacctt ttccactcct ccaggtatga 240
actgggcccc gccctctact tgggctggag tgcctccctg ctctccatcc tnggcggcat 300
ctgtgtcttc tccacctgct gnngntcctc caaggaggna ccagcnanca tgtgagggga 360
tgagcgnnag gagggnatgn agtgatnacc acagcanccn atgacccntg tnaaccccag 420
cttgcncntc atccnacagg gntgggcntc cctacaagcc tngctacggt tgtgataccc 480
cntnccactt tgnatagagt tantnagntt cggnaaaaat ggnaaaangc atacttgtag 540
gaagcnntgg ctgctggaaa cattctgt                                      568
```

<210> 211
<211> 570
<212> DNA
<213> Mouse

<400> 211

```
tgactgagcg gctgcggctg gagcgganag ttcggctagc tgttggatgg cgcggggcgg 60
actgggcggg cagtggccct gggcctggtg ctgcggctcc tctttggtct cagaacaggc 120
ctagaggccg ctccggctcc ggcccatacc cgggtccaag tctccggctc tagagctgac 180
tcctgcccga cagacacctt ccagtgtctt accagtggct attgtgtgcc cctttcctgg 240
cgctgtgatg gggaccagga ctgctctgat ggcagtgacg aggaagactg taggattgag 300
tcatgtgctc agaatgggca gtgccaacca cagtctgccc ttccttgctc ctgtgacaac 360
atcagtggtt gctctgatgt ctctgacaag aacctcaact gcagccgccc accctgtcag 420
gagagtgagc tgcattgcat actggatgat gtctgtattc caaaacacgt ggcgctgtga 480
tggccaaccc agactgtctt tgactccagt gatgagctca gctgtgacac tgacacagaa 540
attgataaga tattccaggn gggagaatnc                                    570
```

78

<210> 212
<211> 400
<212> DNA
<213> Mouse

<400> 212
ctgactgagc ggctgcggct ggagcggagc agttcggcta gctgttggat ggcgcggggc 60
ggagctgggc gggcagtggc cctgggcctg gtgctgcggc tcctctttgg tctcagaaca 120
ggcctagagg ccgctccggc tccggcccat acccgggtcc aagtctccgg ctctagagct 180
gactcctgcc cgacagacac cttccagtgt cttaccagtg gctattgtgt gcccctttcc 240
tggcgctgtg atggggacca ggactgctct gatggcagtg acgangaaga ctgtangatt 300
gagtcatgtg ctcagaatgg gcagtgccaa ccacantctg cccttccttg ctcctgtgac 360
aacatcagtg gttgctctga tgtctctgac aaaaaactca   400

<210> 213
<211> 531
<212> DNA
<213> Mouse

<400> 213
gggaagttga gagtgtatac tgctgggagt ggggcagtgg acaaaacagc ctgttaatag 60
ggtcttgcaa ggggctctgt atgtacccag gggactggct caatcctcac attctagcca 120
tagacaaaca ccaggccaga cccctccatt ctggttcagc ctgggcagct tgggctgagc 180
caccaggacc aatggattta agctgacatt tcagtccaag acgacgactt ctaagtgagt 240
ttaagaccag agaggaaaga ggggcctctg tgggtgctgg gtactccaga ggtgcccttg 300
gtgggaggac cagtggtctt agcaggaagg ggggcccagc aaggtcattc ttggaccctg 360
ggtctagtcc agtagctaga aaaanggacc aagtggccat aaagtcccag ccaatgatgg 420
ggcttttтcc agtgggcccc tgtagacctc aagcccctgg gcntccacct taccaggngc 480
canttcttct cangaaggcc actngcccan ggccccaagn cgcccccttt t   531

<210> 214
<211> 499
<212> DNA
<213> Mouse

<400> 214
ttttttaga cttttttgtgc ttgtgtcttc tgtgactgtc cccttcttca ctttcatggc 60
gacgtctact attactgcga gaggacttgt gtcttgtttc ctccttctct ctgtgacgtc 120
gttctctgtg ccgctcttct ttctcccgac tagctctatg cgctcatag cctctctctg 180
catactccct gtatctgtat cgctcttcgt cactgttgaa aacacttggg gtggggctgt 240
ggtcgcgctc tcgctcccgc tcccgggtgc gctccctttc tctgtcccgg tcccgctctc 300
gctctctgtc tcggtctctc tcccggtctc ggtctcggtc tttttctctc cttgcataat 360
agtcccactg cttggtggtg tccacaaggc tcggccatga nggagcagaa ctggtaaggt 420
ggggaaaangc gaattgcata nggaaacgct cgtgaaaacg ctgtaaacc cggagaatgg 480
cactttctat gttggtana   499

<210> 215
<211> 568
<212> DNA
<213> Mouse

<400> 215
aataatttga acaggaaaat atttccatgt gatcctccat ggtggtgttg gcaagaatgg 60
gtctactatt gcaggcacca gtgtcttgtc acctggactc cacataggat taattattat 120
attggcaata atgatctata agaagtctgc aacaaatatg tttgaaaaac atccttgcct 180
ttatacttta atgtttggat gtgtctttgc taaagttgca caaaaattgg tgatagctca 240
catgacgaaa agtgaactat atcttcaaga cactgtcttt attgggccag gtctttattt 300
tttagaccaa tactttaata attttataga tgaatatgtt gttctgtgga tagcaatggt 360
catttcttca tttgatatga tgatatactt tacttctttg tgcctgcaaa tttcaagaca 420
ccttcatcta aacatcttca agacttcatg tcaacaagca ccggaacagg taatcaaagn 480
ctatgaaggt ccgtgaagtc aaacttcatc cnctgtggtc ttgggacgaa acaggctctg 540
ctgaaccatc ctggnaaaag gcaaacat   568

<210> 216
<211> 558
<212> DNA
<213> Mouse

<400> 216
ggtgcgccga gtggacgttc gtcccttgcc tgcttcacct gctcggccct atccatcacc 60
tggcaccact accacttcca gccccggccg gcccctggc ctgcagcggt ccaagtcgga 120
cttgagtgag cgcttttcca gggcagcagc cgatcttgag cgctttttta acttctgtgg 180
cctggaccca gaggaagcgc gaggattggg ggtggcccac ttagcaaggg ccagctcgga 240
catcgtgtct ctagccgggc caagtgctgg accttgcagc tctgaagggg gctgctcacg 300
ccgcagctct gctacagtgg aagagcggtc cctggatcgt gtcccctatg gggtgtctgt 360
gatcgagcga aacgctcgtg tgatcaagtg gctatatggg ttgcggcagg ctcgtgaccc 420
tcccanccac tgagggttag gcctcctgga actggggttt cccgggaaga catcgtgaag 480
agacagttgg cactttgtcc tttcctgtat ccattgggct gctttcctgc agaacccaga 540
gactcttggg tgaattta   558

<210> 217
<211> 548
<212> DNA
<213> Mouse

<400> 217
gggaaatgaa cgcaaaaggt gccgctggaa gtgtccgacc tagagaaata tgtagaccgg 60
agccctgtta ccttcctcca gcatggactt cctggttctc ttcttgttct acttggcctt 120
cttattgatt tgtgttgtcc tgatctgcat cttcacaaaa agccagcgtt tgaaggccgt 180
ggtccttgga ggagcacagg tgtgctccag ggtaatcccg cagtgcctcc agagggccgt 240

80

gcagacgctt cttcatcagc tcttccacac acgccacccc accttcatcg tcttgcacct 300
gctcttgcaa gggctagtgt atgcagaata cacctgcgag gtcttcggct attgccggga 360
gctggagttc tctctgcctt accttctcct gccctatgtg ctgctaagcg tgaacctggt 420
gttcttcacc ctgacttgtg ccgccaatcc tggtaccatc actaaagcaa acgaatcatt 480
tcttctgcaa gtctataaat tcgatgatgt gatgtttcca aagaactcga ggtgccccca 540
cttgcgat   548

<210> 218
<211> 569
<212> DNA
<213> Mouse

<400> 218
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgacaag attgacagtt atgcccaaca agacctgaag 420
aagggctgca tctgtatggc acacagggca acgtgggnnt caccaatgcc tgggagcatc 480
atccagantg attccgatgc tgtgganttt cccaattaca tggatggttt gaggtattac 540
aatgccatcg tgtgcctgga anctgctgt   569

<210> 219
<211> 561
<212> DNA
<213> Mouse

<400> 219
gatcaggctc aagatctgca ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgacaag attgacagtt atgcccaaca agacctgaag 420
aagggcctgc atctgtatgg cacacagggc aacgtgggnc tcaccaatgc ctggagcatc 480
atccagactg atttccgatg ctgtggagtt tccaattaca ctgattggtt tgaggtatac 540
aatgcactcg tgtgctgact c   561

<210> 220
<211> 545
<212> DNA
<213> Mouse

<400> 220
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgacaag attgacagtt atgcccaaca agacctgaag 420
aagggcctgc atctgtatgg cacacagggc aacgtgggnc ctcaccaatg ctggagcatc 480
atccagactg atttccgatg ctgtggagtt tccaattaca ctgattnggt tgagggatac 540
aatgc   545

<210> 221
<211> 550
<212> DNA
<213> Mouse

<400> 221
gtncaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggaactttg ccaccttatc 180
atcctcattt ccatccttgt cggctgccaa cctgctcatc gtcaccggga ccttcgtcat 240
ggccatcggc ttcgtgggct gcattggggc cctcaaggag aacaagtgcc tactgctcac 300
tttctttgtg ctgctgctgc tagtgttcct gctggaagcc accattgctg tgctcttctt 360
tgcctacagt gacaagattg acagttatgc ccaacaagac ctgaagaagg gcctgcatct 420
gtatggcaca cagggcaacg tgggcctcac caatgcctgg agcatcatcc agactgattt 480
ccgatgctgt ggagtttcca attacactga ttggtttgag gtatacaatg ccactcgtgt 540
gcctgactcc   550

<210> 222
<211> 545
<212> DNA
<213> Mouse

<400> 222
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atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tgaaactttg ccaccttatc 180
atcctcattt ccatccttgt cggctgccaa cctgctcatc gtcaccggga ccttcgtcat 240
ggccatcggc ttcgtgggct gcattggggc cctcaaggag aacaagtgcc tactgctcac 300
tttctttgtg ctgctgctgc tagtgttcct gctggaagcc accattgctg tgctcttctt 360
tgcctacagt gacaagattg acagttatgc ccaacaagac ctgaagaagg gcctgcatct 420
gtatggcaca cagggcaacg tgggntcacc aatgcctgga gcatcatcca gactgatttc 480
cgatgctgtg gagtttccaa ttacactgat tggtttgagg tatacaatgc cactcgtgtg 540
cctga   545

<210> 223
<211> 585
<212> DNA
<213> Mouse

<400> 223
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atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga aagccaccat 360
tgctgtgctc ttctttgcct acagtgacaa gattgncagt tatgcccaac aagacctgaa 420
gaagggctgc aatctgtatg gcacacaggg caaacgtggg cctcaacaaa tgctggangc 480
atcatccaga ctgatttccg atgnnggtgg agtttccaat tacnactgat tgggtttagg 540
nataacaatn tncaantcgt gtgnctgant tcctggtgtc tgggn   585

<210> 224
<211> 575
<212> DNA
<213> Mouse

<400> 224
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgtctt ctttgcctac agtgacaaga ttgacagtta tgcccaacaa gaacctgnag 420
aagggctgc aatctgtatg gcccacaggg aacgtgggg cctcaccaaa tgcctnggag 480
gatcaatcnn gaactgattt ccgatgctg tggagtttcc aaataacaac tgnnttggtt 540
tgngggtata aaattgccan ctcgnggtnc ctgac   575

<210> 225
<211> 522
<212> DNA
<213> Mouse

<400> 225
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240

```
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgacaag attgacagtt atgcccaaca agacctnnag 420
aaagggctgc atctgtatgg cacacagggg aaacgtgggn ctcancaatg ctggagcatc 480
atccagactg nnttncgatg ccgtgngttc caattaancc tg               522
```


<210> 226
<211> 523
<212> DNA
<213> Mouse

<400> 226

```
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgcngcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctctnc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggcng cnaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctacngc tcactttctt tgtgcngcng ctgcnagtgt tcctgcngga anccaccatt 360
gctgtgcnct tcttnnccta cagtggacaa gatgacagtt natgcccaac aaganctgaa 420
gaagggcctg caanctgtta tggnacacag ggcaacgtgg ggcctcacca angcctggaa 480
gccancaanc cagactggaa ttttccggaa agctgggggg aat               523
```


<210> 227
<211> 349
<212> DNA
<213> Mouse

<400> 227

```
gntcgtangc ctgcagtacc ggtccggaat tccgggtcga cccacgcgtc cgctgctggt 60
ggccagagag ctgaagcgct gcagcatggc gcgcggctgc ctccagggcg tcaagtacct 120
catgttcgcc ttcaacctgc tcttctggct gggtggctgt ggtgtcctgg gtgttggcat 180
ctggttggct gccacacagg gaaactttgc caccttatca tcctcatttc catccttgtc 240
ggctgccaac ctgctcatcg tcaccgggac ttcgtcatgg ccatggcttc gtgggctgca 300
tggggcctca aggagaacaa gtgctactgc tcatttcttt gtgctgtgn               349
```


<210> 228
<211> 529
<212> DNA
<213> Mouse

<400> 228

```
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatancgc 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
```

```
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggntgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgacat tttagttaag aaccagagag 480
tactcagata ttcaagctat ttccttcctt tggaagaaag catgctttt        529
```

```
<210> 229
<211> 552
<212> DNA
<213> Mouse
```

```
<400> 229
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatagcgc 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgacat tttagttaag aaccngagag 480
tactcagata ttccagctat ttccttccnt tggnagaaag catgcttatt ccattcctca 540
gacagtgaca tt                                                552
```

```
<210> 230
<211> 553
<212> DNA
<213> Mouse
```

```
<400> 230
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatancgc 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcantgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttgtg gagattgacg 420
ggagacaagc tcaacaaaaa gnntgttact tgaaattgnc attttagtta aagaaccaga 480
gagtactcag atattccagg ctatttccct cccttttgga aagaaagcat gcnttattct 540
atttctcnag nnc                                                553
```

```
<210> 231
<211> 539
<212> DNA
<213> Mouse
```

<400> 231

```
ccaagatgga nggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatancgc 60
tgccagccgc gggatggctg ancaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttgtg gagattgacg 420
ggagacaagc tcaacaaaag natgttactg aaattgacat tttagttaag aaccagagag 480
tactcagatn ttcaagctat ttccttcctt tggaagnaag catgctttat tctatttcc 539
```

<210> 232
<211> 541
<212> DNA
<213> Mouse

<400> 232

```
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatancgc 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgncat tttagttaag aaccagagag 480
tactcagatn ttcaagctat ttccttcctt tggaagaaag catgctttat tctatttctc 540
a                                                                 541
```

<210> 233
<211> 546
<212> DNA
<213> Mouse

<400> 233

```
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatancgc 60
tgccagccgc gggatggctg accnccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtgaa gagtgaaaat ctggaaaaat 300
tggaggagaa acactatttt ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgnttg tcatccaagg agaggttgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgncat tttagttaag aacccagaga 480
gtactcagat attcnagcta tttcctnctt tggaagaaaa gcatgcttta ttccattttc 540
ncaagg                                                            546
```

<210> 234
<211> 584
<212> DNA
<213> Mouse

<400> 234

```
gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat ggttgnggcc 60
cctacnagga tgctacaggc tcagntagag tggataaggg actgcccaaa ggcatatgct 120
gcccttngga ntctctccct ccaanagtga ctgacaanat gncccctnct ggnacctcct 180
antctcccac tatggccatg cnagtggggn atcnnaggga antanccatg cnatgngatc 240
acggcccnaa aaacgcttct tancctcnca ncactgncnc attgattcta aagaaggacg 300
ccaagccaat gtctcnaagc aatctttaag ccctggggaa gcttgcncct tcaaangatc 360
tcaggtggnc ctaaagggag ttttngaatc ccttaaactg aggtttgcaa agaaacnttc 420
aaancccgtt ctccaccnat cnttctttaaa nattttttnga gggnnngccc nnntaagtcc 480
caaggntnga annntgangg ngcccncatn nnggagttgn ccccncgntc agnggnntnn 540
naaaangnag ctttttnnng gggtnccnc cactttggga ngtg                   584
```

<210> 235
<211> 496
<212> DNA
<213> Mouse

<400> 235

```
ctccggtagt ttgttcgccc tggcgtctga cttccaatg ctgagaccag aagtcctcag 60
gtttgctatc ctcagtccgg ggggactttg agacgacgcg tagtttcaag ggtgacctgg 120
gctgaggcca ggaatgactc tactcccctg tgagggctga actgaaaaag gatcaaaggc 180
gtctaaaacg tctttggagc cccctctgaa tacatctgat ggtgtatacg cagctaacag 240
acattgggcg caacagaact aatcgactgt gtgatcggtt atgccattaa attctttcta 300
gaagctgaag catcatcctt tggtaaaaaa acggtgtgca tagaaaaaga ggatggcctt 360
tcaattcaat ttcagcatag aagaagatct ggaaaataaa ttaacatccc tcgatgatgg 420
aacttgtgtc ttagaaagtc agaaaggaaa gcaggacaaa aggcaatcta cagaacgtcc 480
ggggcttgcc tcggga                                                  496
```

<210> 236
<211> 503
<212> DNA
<213> Mouse

<400> 236

```
ggggaacaag agctggatgg agactgggtg tgtggctgga ttctgtttga cccctgacc 60
tagttgactg aaggtgtgtg cacatgtgtg tgcatgggta tggcatctaa cctcatggtg 120
agctggagcc ccagtgggag gtatagtgat attcatagag ctctgcagcc atctccacga 180
tcgatctaat tttaattcat ctttatcctc gagagaaacc tcacattcac tgttaggatt 240
ccagcctggg ctctggcagc cccaacaacc aatgttctac cagttgtcct agaggccaat 300
taaacaccca agtcatagcg aaaggcatcc acccaagtcc acctttggtc ctgacatgag 360
gtttaggttt aaatagaggt ccagaagtgt gcatagctga gcagtcctgg gccagagtgt 420
```

87

gctgccatat gtcggtatgg actctggcca tgtgtttatc gttgggctcc agggtcctgc 480
tagttggtct gacaagttgt tag   503

<210> 237
<211> 541
<212> DNA
<213> Mouse

<400> 237
gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat ggttgaggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgcccaaa ggcatatgct 120
gccctttgga ttctctccct ccaccagtga ctgacaatat ggccccttct ggcacctcct 180
attctcccac tatggccatg caagtggggc atcaagggac ctagccatgc catgtgatca 240
cggccccaaa aaccttctta ccctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata agtgagtttg gaattcctta aatgaggttt gaaagaacct tcacacccgt 420
tctccactat ccttctcaac attttcgagg tctgaccact aagtcacaag acttgaacta 480
tgtctgtgct tcttttgact tcatcctggt cgggattcga ataggcagtt attgagggtc 540
c   541

<210> 238
<211> 560
<212> DNA
<213> Mouse

<400> 238
gaccagagga ccggtgcaga atctggccct gnttccccag agaggcttat ggttgnggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgcccaaa ggcatatgct 120
gcccttggga ttctctccct ccaccantga ctgacaatat ggccccttct ggcacctcct 180
attctcccac tatggccatg caantggggc atcaagggac ctagccatgc catgtgatca 240
cggccccaaa aaccttctta ccctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata antgagtttg gaattcctta aatgaggttt gaaagaacct tcacacccgt 420
tctccactat ccttctcaac attttcgagg tctgaccact aangtcacaa gacttgaact 480
atgtctntgc ttctttttna cttcatcctn gtcnggnatt cgaataggnc gttattgang 540
gtcccaccag ttgacatgtg   560

<210> 239
<211> 597
<212> DNA
<213> Mouse

<400> 239
tggagaaagg cttcttgaag gaaaaggagc aggatgctgt atcctttcaa gccagatacc 60
gtgagcttca ggaaaaacat aaacaagaat tggaagacat gaggaaggct gggcactagt 120

```
ggatgngtac aaggcacttc tgcagtcttc agttaagcag cagctagatg ccatcgagaa 180
gcaatatgtg tctgcaatcg agaagcaagc tcaccggtgt gaggagctcc tgcatgctca 240
gcatcagagg cttctagacg tgctggacac tgagaaggaa ctgctaagag agaaaatcca 300
ggaagctttg actcagcagt cacaggagca gaaggaatca ctggaaaagt gcctccagga 360
ngaaatgcag aggaacaaaa agacactgga gtctgctgtg aagcttgaga aagaagcaat 420
ggaaagatgt catcactaaa agccgttggn nagaaggaaa ngggaaaant cttggggngg 480
aangnttcat tgcccgaaag aaaaaggggg gaacttgttg ggaaaaancc aggaaccatt 540
ggccaaagga ggattccagn ggagaaaggg gtnggccnaa aangggccna ttcccnn    597
```

<210> 240
<211> 568
<212> DNA
<213> Mouse

<400> 240
```
gaagcagcgg ggaaggcaag gaagaagatg gagttagagt tcctctatga cctgttgcag 60
ctcccaaagg aggtagctca gcccacggag gaagagcttc cacgaggagg aaagaagaaa 120
tatctgtcac ccaattccaa gaggaacccc aagtttgaag aactgcagaa ggtgctgatg 180
gaatggatca acaccacact cctcccggag cacatcgtgg tccgcagcct ggaggaagac 240
atgtttgatg gacttattct gcaccacctg ttccagaagt tggcatcgct caagctggaa 300
gtggaggaaa tctctctgac ctcggccagc cagaggcaca agctgggggt catcctggag 360
gccgtcaacc agaacctaca ggtggaagag aagcaggcca agtggagcgt ggagaccatc 420
ttcaacaagg acctgctggc caccttgcat ctccctggtg gccctgggcc aaangcttcc 480
agccggacct gcccctccca gacaacgtcc aggtggaagt catcccncat ttagaggcac 540
caaaaaccgc gcctnaaagt cggganaa                                     568
```

<210> 241
<211> 542
<212> DNA
<213> Mouse

<400> 241
```
ctccggtagt ttgttcgccc tggcgtctga ctttccaatg ctgagaccag aagtcctcag 60
gtttgctatc ctcagtccgg ggggactttg agacgacgcg tagtttcaag ggtgacctgg 120
gctgaggcca ggaatgactc tactcccctg aaaaaggatc aaaggcgtct aaaacgtctt 180
tggagccccc tctgaataca tctgatggtg tatacgcagc taacagacat tgggcgcaac 240
agaactaatc gactgtgtga tcggttatgc cattaaattc tttctagaag ctgaagcatc 300
atcctttggt aaaaaaacgg tgtgcataga aaaagaggat ggcctttcaa ttcaatttca 360
gcatagaaga agatctggaa aataaattaa catccctcga tgatggaact tgtgtcttag 420
aaagtcagaa aggaaagcag gacaaaaggg caatctacag aacgtccggg gcttgcctcg 480
ggatcactct tggaaatgct cctcactggg gaaatgcagc ttnctctgaa gacactggca 540
gc                                                                 542
```

<210> 242
<211> 543
```

<212> DNA
<213> Mouse

<400> 242
cggaaaacat gtcgaggtgc accgggaacc ctgacgtcaa aaagagatgt cctcagcctg 60
ctgaacttgt cccctcggca cggcaaggag gagggtgggg cagacaggct ggaactgaag 120
gagctgtctg tgcagcggca tgacgaggtg ccacccaaag tccccaccaa cggccactgg 180
tgcacggata cagcaacact gaccacggcc ggtggccgca gcaccacagc tgccccgcgc 240
cctctgagac ttcccttggc caacggttac aagttcctgt ccccaggaag gctcttccct 300
tcctccaaat gttaaagcag cttcttgccc ccaactcagt gcacactcca gccagagtcc 360
cggggcccct gatgcagcgt ggtcacccac ccacatagcc actgntacca tccctccccg 420
gacaggcggg ctccctgggc aaggtcactg ccacgccaaa tgccactgta ctcacgggta 480
aaccctgggc cagattcacc caaagcaggt ctcacgtggg aatggcagcg cttctctgcc 540
ggn                                                              543


<210> 243
<211> 531
<212> DNA
<213> Mouse

<400> 243
ctccggtagt ttgttcgccc tggcgtctga ctttccaatg ctgagaccag aagtcctcag 60
gtttgctatc ctcagtccgg ggggactttg agacgacgcg tagtttcaag ggtgacctgg 120
gctgaggcca ggaatgactc tactcccctg tgagggctga actgaaaaag gatcaaaggc 180
gtctaaaacg tctttggagc cccctctgaa tacatctgat ggtgtatacg cagctaacag 240
acattgggcg caacagaact aatcgactgt gtgatcggtt atgccattaa attctttcta 300
gaagctgaag catcatcctt tggtaaaaaa acggtgtgca tagaaaaaga ggatggcctt 360
tcaattcaat ttcagcatag aagaagatct ggaaaataaa ttaacatccc ctcgatgatg 420
gaacttgtgt cttagaaagt cagaaaggga agcaggacaa aggcatctac agaacgtccg 480
ggcttgcctc ggggatcact cttggaaatg ctctcactgg gnaatgcagc t          531


<210> 244
<211> 545
<212> DNA
<213> Mouse

<400> 244
gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat ggttgaggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgcccaaa ggcatatgct 120
gcccttggga ttctctccct ccaccagtga ctgacaatat ggccccttct ggcacctcct 180
attctcccac tatggccatg caagtggggc atcaagggac ctagccatgc catgtgatca 240
cggccccaaa aaccttctta ccctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata agtgagtttg gaattcctta aatgaggttt gaaagaacct tcacacccgt 420
tctccactat ccttctcaac attttcgagg tctgaccact aagtcacaag acttgaacta 480
tgtctgtgct tctttttgact tcatcctggt cgggattcga ataggggcagt tattganggg 540

```
cccac                                                           545


<210> 245
<211> 370
<212> DNA
<213> Mouse


<400> 245
nncgtangcc nnnnnangta ccggtccgga attcccgggt cgacccacgc gtccggacca 60
gaggaccggt gcagaatctg gccctggctt ccccagagag gcttatggtt gnggccccta 120
ccaggatgct acaggctcag atagagtgga taagggactg cccaaaggca tatgctgccc 180
tttggattct ctccctccac cagtgactga caatatggcc ccttctggca cctcctattc 240
tcccactatg gccatgcaag tggggcatca agggacctag ccatgccatg tgatnncggc 300
naaaaaatnt tncttanccn caaannnccn ttccntngaa agggnggang gccnnnnnna 360
aggttttaag                                                      370


<210> 246
<211> 651
<212> DNA
<213> Mouse


<400> 246
cnngcnngng cnantccccc ggtggtntnc tgccaggtnc nggtccggaa ttcccgggtc 60
gacccacgcg tccggaggcc cctaccagga tgctacaggc tcagatagag tggataaggg 120
actgcccaaa ggcatatgct gccctttgga ttctctccct ccaccagtga ctgacaatat 180
ggccccttct ggcacctcct attctcccac tatggccatg caagtggggc atcaagggac 240
ctagccatgc catgtgatca cggccccaaa naccttctta ccctcacacc actgtcccat 300
tgcttctaag aaggacgcca agccactgtc tcaaagcact ctttaagccc tggggaagct 360
tgctccttca aaggatctca ggtggacata agtgagtttg gaattcctta aatgaggttt 420
gaaagaacct tcacaccgt tctccactat ccttctcaac attttcgagg tctgaccact 480
aagtcacaag acttgaacta tgtctgtgct tctttgact tcatcctggt cgggattcga 540
ataggcagtt attgagggtc ccaccagtng acactgtgta cctttaacta tttgctctcc 600
cgctgcctgc tagccaggac acccagtgag taggctttct tgaagaggct g      651


<210> 247
<211> 439
<212> DNA
<213> Mouse


<400> 247
ctgcgtggag cgggtggact gcggggtggt ttctctttct aagcgtagcc aggagctatc 60
gctggcctcg ccgccaccat gagtcgtaac tacaacgatg agctacagtt cttggacaag 120
atcaataaaa actgctggag gatcaagaag ggctttgtgc ccaacatgca ggttgaagga 180
gtgttttatg tgaatgatgc tctggaaaaa ctaatgtttg aggaattaag gaacgcctgt 240
cgaggtggtg gtgttggtgg ctttctgcca gccatgaanc agattggcaa tgtggcagcc 300
```

```
ctgcctggaa tanttcatcg gtctatcggg cttcctgatg tccattcagg ctatgggttt 360
gccataggga acatggctgc ctttgatatg aatgaccctg angccgttgt atccccangt 420
ggtgtcggat ttgatatta                                              439
```


```
<210> 248
<211> 441
<212> DNA
<213> Mouse
```


```
<400> 248
ctgcgtggaa cgggtggact gcggggtggt ttctctttct aagcgtancc agganctatc 60
gctggcctcg ccgccaccat gantcgtaac tacaacgatg anctacagtt cttggacaan 120
atcaataaaa actgctggag gatcaagaag ggctttgtgc ccaacatgca ngttgaaaga 180
atgttttatg tnaatgatgc tctggaaaaa ctaatgtttg angaattaag gaacccctgt 240
ccaagtggtg gtgttggtgg cttctgcca ccatgaaaca aattggcaat gtngcagccc 300
tgcctggaat aattcatcng tctatcgggc ttcctgatgt ccattcaggc tatgggtttg 360
ccataaggaa catggctgcc tttgatatga atgaacctga aggcnttgtt tcccccngnn 420
gtgtccgaat tgaaattaac t                                           441
```


```
<210> 249
<211> 555
<212> DNA
<213> Mouse
```


```
<400> 249
agcatcgtgt tcatcttcgt caacgaggcg ctctcagtgc tcctgcgttc catccactcg 60
gccatggaac gcacgccatc acacctgctc aaggagatca tcctggtgga cgacaacagc 120
agcaacgagg agctcaaaga aaagctgact gaatatgtgg acaaggtgaa cggccagaag 180
ccaggcttca tcaaagttgt gcggcacagc aagcaggaag gcctcatccg ctccagagtc 240
agcggctgga gggcagccac agcccctgtg gtggcactgt tcgatgccca cgtggagttc 300
aatgtgggct gggcggaacc agtcctcacc cgcatcaagg aaaaccggaa acggatcatt 360
tcaccatctt ttgataacat caaatatgac aactttgaga tagaagagta cccgctagcc 420
gcccaaggct ttgactggga gctgtggtgc cgctactaaa acccacccaa ngcctggtgg 480
nagctagaga actccacagn ccccaattca ggagccctgg cctcattggg ctgtttaatt 540
gttggacngg nagtn                                                  555
```


```
<210> 250
<211> 563
<212> DNA
<213> Mouse
```


```
<400> 250
ctttcagcag aaggatttct gtttgtgttg gggggccaag atgaaaacaa gcagacgctg 60
agctcaggag agaagtatga cccagacgct aacacgtgga cngcgctccc acccatgcat 120
gaggcaagac acaactttgg gatcgtggag atagacggga tgctctacat ccttggaggg 180
```

```
gaggatggcg atcgagagct catttccatg gagtgttatg atanttattc caaaaccnng 240
acgaagcagc ccgacttgac catggttagg aagattggct gctatgcagc tatgaaaaan 300
aaaatctatg ccatgggcgg aggctcgtat ggaaaactnt ttgagtctgt ggantgttac 360
gacccacgga cccagcaatg gactnccata tgcccactgn aagagaggag gtttggagca 420
gtngcctgtg gtgttgccat ggagcngtat gtgttttgag gcgtccgaag tcgngaggac 480
attccagggn cagcnaaatt gttnanccgc aaagtccnga gttcttttca tgncgntttt 540
aanaggnggn tcctnccctt aac                                         563
```


```
<210> 251
<211> 542
<212> DNA
<213> Mouse
```


```
<400> 251
agatggtgtc tcgcaggaag aaacggaagg ctggcggcca cgaggagagc ataccgagcc 60
caccgggggta ttcagctgtt ccagtcaagt tctcggcaaa gcagcaggct cctcattacc 120
tctacatgag acagcaccga gttcgccaag gcacccagtc cacatggcct cccgatcgaa 180
cccttttttat ccttaatgtg cccccgtact gcacacagga gagcctgtct cggtgcctct 240
cctgttgcgg caccatcaag acagtggagc tgcaggagaa gcccgacctt gccgagagcc 300
ccacggagcc aaagtcacag tttttccatc ccaagccggt gccgggcttt caggtagctt 360
atgtggtgtt ccagaagcca agtggagtgt cggccgcctt gaacctgaag ggcccattgc 420
tggtttctac agagagccac cttgtgaaga gcggaattca caagtggatc agcgactatg 480
aagactccgt gctggaccct gaaggcctga gaatggaagt agacgcattc atggaggcct 540
at                                                               542
```


```
<210> 252
<211> 494
<212> DNA
<213> Mouse
```


```
<400> 252
cagacactgc ccgctgtgaa ggtgcccact gttgagtgta acaacaccna cacatgtgcc 60
nngagtggcc tggcacgtac ctgccaccat cgaatccgcc tgggggactc tgacagccac 120
tattacatct caccgtcctc ccgggccagg atcaccgcag tatgcaactt cttcanctat 180
attcgctaca tccagcaagg tctggttcgg caggatgctg agccgatgtt ctgggagatc 240
atgaggcttc ggaagggcat gtcactagcc aagcttggct tcttccccca ggaggcctag 300
ggcatggccc caggcctgaa gtaagctctg agctagagca aacagctgcc ttgggacaga 360
cagacaagaa atcctggagc cagctctgag ccagaagctg aaaggacaga taaacaacca 420
ggctgtagag acagttctga gcccgtacca cncatccgtc ctgagacaga caaaaggaca 480
gcctggcctg gant                                                  494
```


```
<210> 253
<211> 516
<212> DNA
<213> Mouse
```

<400> 253

```
gtcaaaagaa gagattgcaa atcaaaccgg agcacgggat tcgagttctg aaaataaaga 60
aggagaatcc tgcagaggaa agatcgccct gtcagatatc cgaataccat taatgtggaa 120
agactccgat cacttcagta ataaagaatg cacacagcgc ttcgccatct tttgcttatt 180
caggatggga gctcaggtgt ttgacacgga catggtgatt gtggaccaga cagtcacaga 240
tatatgtttc gaaaatgtca ccatcttcaa cgaggcagga ccggacttcc agataaagat 300
agaagtctac agctgcagcg cagaggagtc ctccctaacc aacacccccga ggaagctggc 360
taagaagctg aagacgtcca tcagcaaagc cacgggaagg aaaatcagcg cancttccag 420
gaagagagcc cagaggcgtg cttgctcgct ggttctgtgg caggtgcaaa gtaccatttg 480
ctggctcata ccacctgact ttgggaaatg ctgggg                              516
```

<210> 254
<211> 525
<212> DNA
<213> Mouse

<400> 254

```
gagagggtcc gacagagtgc cgactttatg ccccgctggc aaatgatgag agttctagaa 60
gaggagctag gcaaggactg gcaagacaag gtggcctccc tcgaggaagt gcccttgct 120
gctgcctcca ttgggcaggt acaccaaggc ttgctaaagg atgggactga ggtggctgtg 180
aagatccagt acccaggtgt tgcccagagc atccagagtg acgtggagaa cctgctggcc 240
ctgctcaaga tgagtgtggg cctgccagag ggcctgtttg ctgagcagag cctgcagacc 300
ttgcagcagg agctggcttg ggaatgtgac tactgcagag aagcggcctg tgcccagacc 360
ttcaggaagc tcttagctga cgacccccttc ttccgagtgc cagctgtggt gcaggagcta 420
tgcactacac gggtgctggg catggagctg ctggggggaa tccctctaga ccagtgccag 480
ggcctgagcc aagacatccg gaatcagatc tgctttcagc tcctg                    525
```

<210> 255
<211> 591
<212> DNA
<213> Mouse

<400> 255

```
gattttcaag anttgctgct cttcctccag aacctgccta ctgcccgctg ggntgaccan 60
gatgtcagcc tgctnntggc tnaggcctat cgcctcaagt ttgccttcgc agacgncccc 120
antcactaca anaagtgagc ctgggcccn tngcagtngc ntcaccctag ggatagcatc 180
ccctctctgc ctgggnagtt nctggcntct ggactggtcc tttccngntg tgacctagca 240
caatggaccc ncnatgggcc nanggttggn agganaggna gccnnanttt gancagannc 300
nnnggangnc ccagaagnga ntcctggntt cagnaagctc attntggcca ggagtgccct 360
caccctggcc ctcccttgcn aaaatgnccc taccttaana gcnccnnagt ccangacagn 420
ccaangaggn aagttccctc angagagncc ctcgctgtan gtacggggtg nnatgcagag 480
gtggtgnaag ccatcttaag gctgctctna tttggcacca antctnttct gttcanntng 540
agagaaatan agtccnngna aaanaatgcc gannatgggc nnnnggnttg g            591
```

<210> 256
<211> 580
<212> DNA
<213> Mouse

<400> 256
cttcgtgggc ttgtctgttg ttggacagct ctaccttcgc tggaaagagc ctgactggcc 60
tcgacctctc aagctgagcc tcttttttcc catcgtgttc tgcgtctgct ccttgtttct 120
ggtggccgta cccctcttca gtgacaccat caattccctc attggcattg ggattgccct 180
ctctggggtc cctgtctact tcttgggtgt atacctgcca gagtcccgga gaccactctt 240
tattaggaat gtgctggcta ctgtcaccag agtcacccag aaggctttgc ttttggtctt 300
gactgagcta gaatgtaact gaagagaaaa atgttgagag gaaaactgac tagaagccag 360
agatgacatt ccctgaangc ccaaaaggct gtggtcgcag gccaccanaa gaccnngttc 420
cctaaaanct tctgnnttaa anggngctct tggccccaca ttctgtaagg ggggctcagg 480
ggccaatggc ttctcctcaa ttgggtaaag ctaatgggga agataccaat tnaggccagc 540
cttnaaagaa ttgggganntn cnaatggnan gggggaggtt   580

<210> 257
<211> 543
<212> DNA
<213> Mouse

<400> 257
gggaaagcag aaatgatcat tgaaaagaac accgacgggg taaacttnta taacatctta 60
nntaaaagca gcccggagaa agctatggaa tcgagcctcg agttcctccg gagccccta 120
gttcgtctct gtcagcgcca tgtgagacac ctgcaaggag acgccttaag tcaactcatg 180
aacggcccca tcaaaaagaa gctcaaaatt atccctgagg atatctcctg gggagcccag 240
gcatcttatg tcttcctaag catggaaggg gacttcatga agcctgccat cgacgttgtg 300
gataagttgc tggcagctgg ggtcaatgtg accgtgtaca acggacagct ggatctcatt 360
gtggacacca taggtcagga gtcctgggtt cagaagctca agtggccaca gctgtccaaa 420
ttcaaatcag ctaaaatgga aggccctgta caacgatcct aagtctttca gaaaacagct 480
gcgtttcgtc aagtcctatt gagnacctag gcttcnnact ggatcctaaa agggccgggt 540
caa   543

<210> 258
<211> 580
<212> DNA
<213> Mouse

<400> 258
cggaacggtg gctganatgg cccctgttgg catcctcaaa tccatcatga agaagaaaga 60
tggtattccn ggtgcacaat ccagtcaggg acccaagagt ctgcagttcg ttggggtcct 120
caacggagag tatganagtt cctccagtga ggatggcaac agcgangatg aagatggtgt 180
tgctgaacac cccaggagta gctcttctgg atcagatgat agcagtgggg gatctgacgc 240
tggaaccccct ggcccccaca atgacaaaga tgctggggac tgcgagcttg agacacatcc 300
agagctgacg gcagggagan aanggaggng tgaactgaac ccccgtttga gggaggcttg 360

95

```
cnttgctctg aatcagcagc tgaaccggcc acgtggagtc accagcatga tggcaatgca 420
gcacgccttg tggcccanga atggtttcga gtgtccagcc aaaaacgctc tcaggcagag 480
tctgtggcta gggttcttcn agggtgaaaa acctggggcc tgaactgctn gntatgtggt 540
tnaactggnt gatggcaatg gnaaacacag cnctgcattn                       580
```


<210> 259
<211> 578
<212> DNA
<213> Mouse

<400> 259
```
ggcgagaaac tggacatcat ccggcagaag cgcctgtctc acgtgtctgg ccaccggtcc 60
tattacctgc gtggggcagg agccctctta cagcacggcc tggtcaactt caccctcagc 120
aagcttgtca gcaggggctt caccccccatg acggtcccag accttctgag aggagctgtg 180
tttgaaggct gtggaatgac accaaatgcc aacccatccc agatttacaa tattgacccc 240
tctcgcttcg aagaccttaa cctggccggg acggcagagg tggggctggc aggatacttc 300
atggaccact ctgtagcttt caggggacctt ccagtcagga tggtctgtgc cagcacctgc 360
taccgggcag agacagacac tgggaaggag ccttggggac tgtaccgagt ccatcacttc 420
actaaggtgg agatgtttgg ggtgacaggn cctgggctgg agcagagctc gcaactgttg 480
gatgagttcc tgtctctgca ggtggagatc ttgaacggag ctggggttgc acttccgggg 540
tattggacat gcccanccaa ggaactnggn cnttcctt                        578
```


<210> 260
<211> 571
<212> DNA
<213> Mouse

<400> 260
```
gccgtacgtg aaggcgagtt tctccggtag tttgttcgcc ctggcgtctg actttccaat 60
gctgagacca gaagtcctca ggtttgctat cctcagtccg gggggacttt gagacgacgc 120
gtagtttcaa gggtgacctg ggctgaggcc aggaatgact ctactccccct gtgagggctg 180
aactgaaaaa ggatcaaagg cgtctaaaac gtctttggag ccccctctga atacatctga 240
tggtgtatac gcagctaaca gacattgggc gcaacagaac taatcgactg tgtgatcggt 300
tatgccatta aattctttct agaagctgaa gcatcatcct ttggtaaaaa aaacggtgtg 360
catagaaaaa gaggatggcc tttcaattca atttcagcat agaagaagat ctggaaaata 420
aattaacatc cctcgatgat ggaacttgtg tcttagaaag tcagaaagga aagcaggaca 480
aaaggcaatc tacagaacgt ccgggcttgc ctcgggatca ctcttggaaa tgctcctcac 540
tgggaaatgc agcttcctct gaagacactg g                               571
```


<210> 261
<211> 573
<212> DNA
<213> Mouse

<400> 261

96
```

```
agatggttgg ctaggcagca ggaataccca tgcgcagtgt ctcagggtgg gccccaccac 60
tgcagcagtc aagcggcctc tcttccccag gtacctggcc agtggttccg gagacaccac 120
tgtgcgcttc tgggatctca gcactgagac accgcacttc acatgcaaag gacaccggca 180
ctgggtcctt agcatatcct ggtccccaga tggcaagaaa ctggcctcag gctgcaagaa 240
tggccaggtt ctgctgtggg acccaagcac ggggctgcag gtgggcagga ccctcactgg 300
ccacagcaaa tggatcacag gcctgagctg ggagcccctt cacatgaacc ccgagtgccg 360
ctacgtggcc agcagctcca aagacggcag tgtacgagtc tgggatacaa ccgcaggccg 420
ctgtgaacgc atcctcangg gacacacgca gtcagtcacc tgcctccgat ggggaggaat 480
gggcttctat attctgcttc cnaggaccgg aaccatcaaa gtctggaggg cccatgacgt 540
aaanccnttt attcccttaa agggggggcc aan                              573
```


```
<210> 262
<211> 589
<212> DNA
<213> Mouse

<400> 262
aggagtgttg actaagttgt gcagaaagaa gcctaaagca aggcagtttn tcttatttaa 60
tgatattcta gnatacggca atattgttat ccngangana aaatacaaca aacagcatat 120
natncccttg gaaaatgtca ccattgattc catcaaagat gnaggggnat tacggaatgg 180
atggcttatt aagacaccga ctaagtcgtt tgcagtttat gcngccactg ccacggagaa 240
gtcagagtgg atgaatcaca taaataagtg tgtcactgat ttactctcca aaantgggaa 300
gacgcccagc aacgagcatg ctgctgtctg ggttcctgac tctgaggcca ccgtgtgtat 360
ncgctgtcag aaagcaaaat tcacaccagt caatcggcgg gcaccattnc cgcaaatgtg 420
gctttnntgt ttgtngtccc tgctctgaaa aagcgatttc ttcttcccaa cccagtctnt 480
taagcctgnt gcggattttg tggaacntct tgccnaagga nctggctttc ccacnggggg 540
acattggccc cngtnttaag cccgnctaag aatcanaccc tcnttttag                589
```


```
<210> 263
<211> 578
<212> DNA
<213> Mouse

<400> 263
gggagtggga tacaccctcc ctccttagct cacccaggng cctgggctcc aggtcgccca 60
ccttacctcc caaggcaaca gagtgatggg agcctggtaa gaagccagcg gcccttgggg 120
acctcaagga gaagtcccag agggccttcg caggtcagtg cccatctcag ggcaagcggg 180
gcttacaggg atgctccaga gatggcagcc cagtcaccat gttctgtccc ctcacaggt 240
tctaacccca gcttcttctc aacccccga gagtgtttgc caccttttcct tggcgtcccc 300
aaacaaggct tgtactctct gggaccccca tccttcccac ctagctctcc agccccagtc 360
tggaggaact ctctgggtgc cccctcagca ttggacaggg gagagaatct gtactatgaa 420
attggggtac gggaggggac ctcctactca ggccccagcc gggtcctgga gtccgtttcg 480
ctccatgcct cccgagangc ataatgctct atggnatgct tggccagtca caacgcttca 540
caggtccctg atttcctacn taaactaccc cccttccc                          578
```

<210> 264
<211> 610
<212> DNA
<213> Mouse

<400> 264

```
tntcaggaac actcatgacc ngtgaccct ggggntcaaa agagcagaga ncctttantcc 60
gntcaagacc angcncatga acacactcat ggatgttctg cgccacaggc ccggatgggt 120
ggaagtcaaa gatgaaggcg aatgggattt ctattggtgt gatgtcagct ggctgcggga 180
gaactttgac cacantacat ggatgagcac gtgcgcataa gccacttccg gaaccactac 240
gagcttacca ggaaaaacta catggtaaag aacctgaagc gcttccggaa gtacctggag 300
cgtgagtcag gaaagacgga ggcagccaag tgtgacttct tcccccaaaa accttttgaa 360
atgccctggt gagnaccatc tgtttgtgga ggantttcnc aaaaacccc ggggatcacc 420
ttggattcat gaancctgtt cgncccgatc ttcaaagggg gaaagggcnt aattttctct 480
ttccggaaaa ctnaaaaaaa ccattcnttg ganctttggaa ggaaaggggc cccnttttccc 540
gggggaaaaa aaccccncc cgggnnnttg gaaaaacccc agcccntnnn tttcgaaggc 600
caaanaatnn                                                        610
```

<210> 265
<211> 180
<212> DNA
<213> Mouse

<400> 265

```
attcatgcat agtgtatgga cttcgttttg tagcaaatca caggatttgt tcaaataaca 60
gatcttttaa gtgtatgaat gtaaataatc atagatgaga gtgtacctcg ctgtattttc 120
aaataagtaa ccttttttaag acattaaaac tcaatatatc agttgaaaaa aaaaaaaaaa 180
```

<210> 266
<211> 602
<212> DNA
<213> Mouse

<400> 266

```
accacgcgtt ggccttaaga tccaccgang agggngccng gtacngccaa tcctggccag 60
cggacnagta tccnctnnag cttgncgnna actagncggt ctncatgaag aacntgagtt 120
nagtnnntat tnacattacn atttnntnnn gangcnntac cnggagcgat cnnanngnna 180
ggntgtggac ctgnttgtgg gncagttgan aagttacctc gggnnannna gnctcngggg 240
ntcnctccnn nancntngan gtgntnnttgg ngcnttnccn ntncatcccc nagnaaggan 300
nttgctgtnt ggnaaagnna tctttgnngg cnttgcttcn gcnttttnac cnaggaggat 360
canatanagt cggaggaatn gcccccagtg ttttgacncc ttgtcggnan aaananntccg 420
anagtancna agaaggnngn ccagtnatnn gcttcncccc ggaatcctng ggttgntacc 480
atctgaancn gnttttanac ctcncggagg gctctagtna ncanaagttt cagtaagggt 540
gaagangtnc ccnactngcn gannnntaag ccnagggggng ncttttgncc aggcnnnaaa 600
ng                                                                602
```

<210> 267
<211> 544
<212> DNA
<213> Mouse

<400> 267
```
tacagcgaga cctggtcggt gtagaaaacc tcattgctcc tgggagggag tttatccgtg 60
agggctgcct gcacaagctc accaagaagg gcctgcaaca gaggatgttt tttctgttct 120
cagatatgtt gctgtataca agcaaaagtg tcacaggagc cagtcatttc cggatccgtg 180
gcttccttcc actccgtggc atgctggtag aagaaagtga gaatgaatgg tctgttcctc 240
attgcttcac catctatgca gctcagaaaa caattgtggt agcagccagc actcggctag 300
aaaaggaaaa gtggatgcag gacctgaatg cagcaatcca agcagccaag actatcggtg 360
actcacccc agtgctgctg ggaggcccgg tgtatactcg tacccctaga tcttctgatg 420
aagtctctct ggaagaatca gaagatggtc gaggaaaccg gggctccctg gaggggaaca 480
gccagcaccc ggggcaatac aacaatgcat gtgtgctggt accgtaaatac aagtgtgtcc 540
agag                                                              544
```

<210> 268
<211> 510
<212> DNA
<213> Mouse

<400> 268
```
gcnagttgtg ctcaggaaac tgctaccttg tcctctacac ataccagaaa ctgggctgtg 60
tccagtacct cctgtaccta tggcagggcc accaaagcac tgtagaagac accaaggccc 120
tgaactgcag tgctgaagag ttggacctca tgcaccaggg tgcactggcg caggggcatg 180
tgaccatggg cagtgagcct ccccacttcc tagccatctt ccaggggcgg ctggtggtct 240
tccaggggaa tgcaggcaac aaaggggaaa gaccaccagt atccgacacc aggctttttcc 300
acgtgcaagg gaccgagagc cacaacacca gaactatgga ggtgncggcc cgtgcctcct 360
ccctcacttc tggtgacgtc ttctttctga tcacaagtca tgtttgctat ctctggtttg 420
ggangggctg tcatggggan caaacgtgag atggcgcgga cgggtggtca gtgttcttcc 480
ccagggaana ncaaggagac aattctggan                                  510
```

<210> 269
<211> 545
<212> DNA
<213> Mouse

<400> 269
```
ggatcatcga ggctttcggt gtgcgtgcca cggactctcg ctggagccgg gacccgctct 60
accgagacga cccttgtaag cagtgccgca agagatacga gaaggggtgat gtgtcactct 120
gccgctggca ccccaaaccc taccaccatg acctgcctta cggacgttcc tactggatgt 180
gctgccgcag agccgatcgt gagacaccag gctgtcgcct gggcttgcat gacaacaact 240
gggtactgcc gtgcaatgga gtgggtggag ccgtgctgg ccgggaagag gggaggtgaa 300
gcccgtggat gaggggacac ctgcgatacc tagcccctcc ccgctttgcc gggagctggg 360
```

```
gaccaggact gagtcaccag ccgacaccta ccagtccatg cggcagcatc catctcccac 420
cagaactggg accaggtttg gggatcaaca nggcaaatan cttgcttgac ctctgttggt 480
tttttattct tcagaaccag ggccatggac cctcagagaa gggtgtggnt ttttgctttt 540
ttttt                                                            545
```

<210> 270
<211> 548
<212> DNA
<213> Mouse

<400> 270
```
gaacatagat gtggcgactt gggtgcggct gctccgtaga ctcatcccta gtgctgtggc 60
cactggcacc ttcagtccca atgcatctcc aggtgctgag atccggcaca ctggagacat 120
atccatggag aaattgaatc tcggtgctga ctcagacagc tcgtcccaaa agagcccacc 180
agggctgccc tccacctcat gcagcctgag ttctccaacc catgaatcca ccacatctcc 240
agagctgcct tcagagaccc aggagactcc aggccctggc ctgtgcagcc ccttgagaaa 300
gtcgcccctg acacttgagg anttcaagtt cctggcagtg cttggccggg gtcactttgg 360
aaaggtgctg ctgtctgaat tccgctccag tggggagctc tttgccatca aagccttgaa 420
gaaggtgaca ttgtaagccc gagatgaggt taaganctga tgtntnaaaa gcgggattt 480
ggcggccgtg aaccanggga agganatccc tttcctggtg aacccttttc gggtgntttc 540
aanacccc                                                         548
```

<210> 271
<211> 528
<212> DNA
<213> Mouse

<400> 271
```
ggtcgacggg gtcaagtcct ggttgtcaaa gaacaaggga ccttctaagg caccttctga 60
cgatngcagc ttgaagagtt ccagcccaac cagccactgg aagccactcg ccctgaccc 120
atcggatgat gagcatgatc ctgtggacag catctccaga ccccggttct cccacagcta 180
tctgagtgac agcgacacag aggccaagct gacagagacc agtgcatagc ctgggatggc 240
tcacgactct cccacccac agcctctccc aggatagagg ggcaccactg ccccacctg 300
actgccgatc tgcatggaaa acaccttggc tttctgtcag ggggactttc caggctgtgg 360
gcgtctgaca gctccacgcg gcagaggtgg gcgaanagag tctctccaaa gagagcttcc 420
gtcttgcctc tgaacgccat gctcttagtc ccgctctggg ccactatgga ccacgtcagg 480
tggcctggca ttccatggag ccggtggtng actncatctc agcctctg           528
```

<210> 272
<211> 546
<212> DNA
<213> Mouse

<400> 272
```
actagntntn cgatcgcgat ggattcccctt naagtcttcc aagcctnaca gatccacacc 60
```

```
tggaacctgt aggagcccan gaacancgcc acatcggntt tattcangtg atcacaaata 120
tggatggatt anatatagtt caacctccan ctgggnaaat tgtnaatgaa cttttcaaag 180
aggcaangga acatggagct gtcnctctaa acgaancnac nanatcttca aggggngaca 240
anactaagtc atttacaggt ggaggataca gattgggggaa ttccntctan nancgatcag 300
agtatatcta tggggganaat cagctccaan atgttcaggt ttaactgaan ctgnggcgca 360
atgggtttca ntttaaaacg agggaaaant naaggcntac agtcgaccca aacaaaatnc 420
ngggntttta ngaatctgtt anganaggga gnnactcccc ctggaagctt tcannnactg 480
gtgnnnggcg ccccannttt naccctgggt tatgggggga ntcatcnaag acccaagagn 540
tttttta                                                         546
```

```
<210> 273
<211> 514
<212> DNA
<213> Mouse
```

```
<400> 273
gatgaaatta tttacactgg gaattataat gcaattttta atttaaaaaa atctcttaat 60
tcgnngactt ttttaaattc aagaatttcc aaagaagaaa gcttcgtttg taatcatatg 120
tggctggtgg atagcctccc agagttgagt gtttccccac agcagaagag tgtggtctgt 180
gagaacagaa cttcataggc agtcaccagg gtgaagggag gaggcaagga ccctgttact 240
atgttgctaa aattgtcaga atcgccacaa actcagaagg gatacaaatt atcccattgg 300
attttttgcct gagttccatt ttaaggtcac atctgaagaa ctcaggtgta cttctttgta 360
aatgtaagtt atttcataag actatgtagc ttcttatttt aaaatagttt gtctgttgtg 420
agttttatt tatgatctct gatgtttaaa ggctttattc aggtgatcac aaatatgatg 480
gattacatat agttcaacct ccaactgggg aaat                           514
```

```
<210> 274
<211> 512
<212> DNA
<213> Mouse
```

```
<400> 274
attcaagcag gaggtagagg ggacagcagg gctcctgtat gttgatgacc ccaactggcc 60
tggaatcggg gttgtcaggt atgagcatgc gaatgatgat gacaccagtt tgaaatctga 120
tccagagggg gaaaaaatac acactggact tctgaaaaag ttaaatgaac tggaatctga 180
cctcacattt aaaataggcc ctgagtacaa aagcatgaag agctgcattt acattggcat 240
ggcaagtgat gatgtggacg tttctgagct agtggagacc attgcagtca cagcccgggn 300
aattgaggag aactcaaggc ttctagagaa catgacagaa gttgttcgga agggaattca 360
ggangcacag gttcagctac agaagggcaa atgaggagcg gcttctggna gagggagtgt 420
tgcggnaaat ccctgtagna ggatccgtgc tgatnggntt tctccagtcc aggcttcacn 480
ggaggggaag aagtttntaa cttaaacagn ng                             512
```

```
<210> 275
<211> 537
<212> DNA
```

<213> Mouse

<400> 275
```
atgaaaaggt gcaggatgag gagccccagc nccccaccgg ggctcaggtg aagcgccacg 60
cctcctcctg cagtgagaag tcccaccgtg cggacccgca ggtcaaagtc aagcgccacg 120
cctccagtgc caatcaatac aagtacggca agaaccgggc ggaggaggat gcccgaaggt 180
acctggtaga aaaagagagg ctggagaaag agaaggaaac gattcggaca gaactgacgg 240
ccttgcgaca ggagaagaaa gagctgaagg aagccattcg gaacaaccca ggagcaaagt 300
cgaaggcctt ggaagaggcc gtggccactc tggaagctca atgccgtgcc aaggaagagc 360
agaggattga cctggagtca agctggtagc tgtgaaggag cgcttgcagc agtccctggc 420
cgggggtccg ggcctccgtc tgtccgtgag ccaaccaaga acaagagccc agacacttac 480
caattaaanc cccaaaagcn ttgccccaga gcaatntttc ccntggtcaa ctttgnt     537
```

<210> 276
<211> 497
<212> DNA
<213> Mouse

<400> 276
```
ngnagagact gtctggnnaa actgatctat gnacggntgn tngantggnt ggngtctgtg 60
atnaacagna gcatcngngn agactccaaa tcatggactg ccttcatagg gctgctagat 120
gtgnangggn nngagtcatt tcctaataac agtttggaac agcngtgcat caactatgcc 180
aatgagaagc tacagcagca cttcgnggct cactacctca gggcccagca ggaggagtac 240
gaagttgagg gcctggagng gtcattngtc aactaccagg acaaccagac ctgcttagat 300
ctccttgaag ggagccccat cagcatctgt tccctcataa atgaggaatg ccgcctnaac 360
cggccaagca gtgcagcaca acttacagan gcgcatngag agcacgctgg gcaggaacgg 420
gcntgcctgg ggccataaac aagcttcagc cgggagcccn gctntcgngg aagagcattn 480
acgcgggggn cngtacg                                                  497
```

<210> 277
<211> 551
<212> DNA
<213> Mouse

<400> 277
```
ggggagtctt gtgacaacga caagagcacc tgtcccaacg gtgggcctag catgtgcatg 60
gccagcggac ctggacaaga catgtttgag agcacacaca ttataggacg gatcatctat 120
cagaaggcca aggagctgta tgcctctgcc tcccaggagg tgaccggccc agtgcttgca 180
gctcaccagt gggtgaacat gacagatgtg agcgtccagc tcaatgccac acacacagtg 240
aagacgtgta acctgccct gggctacagt tttgccgcag gacaattgat ggagtttcgg 300
gcctcaatat tacacaggga actacggaag gggatccatt ctgggacact cttcgggacc 360
agctcttggg aaaaccatct gaagagattg tagagtgtca gaaacccaaa ccaatcctgc 420
ttcacagtgg agagctgacg ataccacatt cttggcaacc agatattgtt gatgttcaga 480
ttgttaccgt tgggtcttng gcatagctgc tatccctggg gaattaacaa ccatgtcggg 540
acgaagattt c                                                       551
```

<210> 278
<211> 574
<212> DNA
<213> Mouse

<400> 278

```
ggcgcgactc cctcagcatg gccatccaag aagtctacca ggagctcatc caagacgtcc 60
tgaagcaggg ctatctgtgg aagcgagggc acctgcggag gaactgggcc gagcgctggt 120
tccagctgca acccagcagc ctctgctact ttgggagtga ggaatgcaag gagaaacgag 180
gcaccattcc cctggatgct cactgctgtg tggaggtgct tccggaccgc gaaggaaagc 240
gctgcatgtt ttgtgtgaag actgccagcc gcacctatga gatgagcgcc tcagacaccc 300
gccagcgcca ggagtggacg gccgccatcc agactgcgat ccggctgcag gcggagggga 360
agacgtcgct gcacaaggac ctgaaacaga gcggcgggga gcagcgggaa cagcgcgagc 420
aacgccgggc agccaaggag gaggagctgc tgcgactgca gcagcttgca ggaggagaag 480
gagaggaagc tgcaagaact tgagctgctt caggaagctc aacggcaagc cgagcggtgc 540
ttgcaggaaa aaggangagc gccgcgtaan naga                            574
```

<210> 279
<211> 563
<212> DNA
<213> Mouse

<400> 279

```
ataaagtaca ctggacacta cttcataacc acgcttctct actccttctt cctgggatgc 60
ttcggagtcg accgcttctg cctgggccac actggaacag cagttgggaa gctgctaaca 120
cttggaggac tggggatctg gtggttcgtt gatcttattc tgctcatcac tgggggggctg 180
atgcctagtg atggcagcaa ctggtgcact gtctactaag ccctgctgct gtcctgcgcc 240
agcaaggaaa gccagtgctt gcctgccaag ataattacta caagctctga actctcctct 300
gagcatcacc atcttctctt ggaggaagga ccgaccaagt ttttcacccc aaatcttaag 360
cttgcaaact agagtgacaa gcagtattgt ggagtcccgt cgtacccttc ctcacataca 420
caatctcaaa gagcaaagct ggtgacttct ctccagagat catcgtcagt gacgtttctg 480
tgtggctggc tcttcagccg ttggaggcan ggggacccac caggataaaa ccaagtgagt 540
gtttatccac tcacagnctt ttg                                        563
```

<210> 280
<211> 580
<212> DNA
<213> Mouse

<400> 280

```
cggcctgtta gcagcagcat tgaccccagc ctcctcagca ccaagcaggg tggccttaca 60
ccctccagac nnaaggaacc ttccaaggtc gccagtggtc ggagcactcc agcccctgtc 120
aatcagacag atcgggaaaa ggagaaggcc aaagccaagg ctgtggccct ggactcagac 180
aacatctcct tgaagagcat aggctcccca gaaagcactc ccaagaacca agcaagccac 240
cctccagcca ccaagttagc agagctgcca ccaacccctc tcagggccac agctaaaagc 300
```

```
tttgtcaagc caccctcgct agccaatcta gncaaagtca actccaacag tttggatcta 360
ccatcttcca gcgacagccc atgcttccaa ggncccagat ctgcatgctc cgagctcatc 420
aactgggggn nctctccctt cnngcttcan tccccangcc cagncaccna tcctcaattt 480
taactcagnc agcttctccc agggcctgga gntaatgagg tgggttcagt gtcccaaang 540
gagacccggc ntngtacccc aaaantcttc agggntggga                         580
```

<210> 281
<211> 569
<212> DNA
<213> Mouse

<400> 281
```
attcttctac agtgagggct tggggaagct caaggacatg aaggtgctgt acaccaaccg 60
agcccaggct tttataaaac ttggggacta tcagaaggct cttgtggatt gtgactgggc 120
tctgaagtgt gatgagaatt gtacaaaggc ctatttccac atggggaaag cccacgtggc 180
cctgaagaac tacagcaagg ctaaagaatg ttatcagaag attgaagaga taaaccccaa 240
gctgaaggca caggtgaaag aacacctaaa tcaagtaact cttcgagaga aagcagatct 300
tcaagagaag gaagcccaag aatctctgga ttcaggaaag aacacagcag tgacgaccaa 360
aaatctcctg gaaaccctat ccaagcctgg ccagacaccc ttgttctatg caggaggcat 420
tgagattctg acagaaatga tggctgactg cacagagcga acgttgttca gaacctacgg 480
tggattcagc accatcagtg accatgaggt catcagaagg tgnctcttct taacagggaa 540
ggatgcatnc gaggaggtgc ttttcgttt                                     569
```

<210> 282
<211> 523
<212> DNA
<213> Mouse

<400> 282
```
aggaattgag tttgttaaac attttcgtag tcaccttgga gttattgaga gtattgcagt 60
tagctctgag ggagcgttgt tctgctctgt cggtgatgat aaagcgatga aggtgtttga 120
tgtggtgaac tttgacatga tcaacatgct gaagctcggc tattttcctg gacagtgtga 180
gtggatatat tgcccaggag atgccatatc ttcagttgct gcttctgaga agagtacagg 240
aaaaattttc atttatgatg gacgaggaga taaccagcca cttcatattt ttgacaaact 300
ccatgtatcc cctcttactc aaataagact aaacccagtt tacaaagcag tggtgtcttc 360
tgacaaatcc gggatgattg agtactggac tggaccgccg cacgaatata agttccctaa 420
aaatgtgaac tgggagtata agacagacac agacttatat gaatttgcca agtgtaaggc 480
atatccaacc agcatatgtt tttcacctga tgggaagaaa ata                     523
```

<210> 283
<211> 519
<212> DNA
<213> Mouse

<400> 283

```
cacctggttc tcagtagctc aattctccag gctgaggggt agacattaga tgttgttctt 60
tgcaaactaa gcctgtggat cccttctcat tcatagttct gtatctctca aggatcttct 120
aattattata aaactactaa aggatactgt gctgttgaag gtatattgac agctgtcata 180
actcagcagt tggtgccata tagactggag gtgtggtctc tgtgctactg ttacaatctg 240
atgattagct ccacatttag gcaaatggaa gatgcccttt gacccccatg acacatttaa 300
ttccgtgttc tacttggatg agaagaggtc tgtgaatgtg tccatgatga aaattgagga 360
attgaccaca ccctacttcc gggatgatga gctgtcctgc actgtggtgg agctgaagta 420
caccggaaat gcaagtgcta tgttcatcct ccctgaccag ggcaggatgc agcaggtcga 480
agccagctta caaccagaga ccctgaggaa gtggaagaa              519
```

```
<210> 284
<211> 522
<212> DNA
<213> Mouse
```

```
<400> 284
ggccaatgaa gatggcttga ctgcactgca ccagtgctgc attgacgact tccaagagat 60
ggcacagcag ctcctggacg ctggggctga tgtcaatgct cgagacagtg agtgctggac 120
acctctgcat gctgcagcta cctgtggcca tctgcatctg gtggaactcc ttatttcacg 180
tggtgcagat ctccttgcag tcaattccga tgggaatatg ccctacgacc tgtgtgagga 240
cgcacagacg ctggattgcc ttgagactgc catggccaac cagggtatca cccaggaggg 300
cattgaggag gcccgggcag tgccagagct gtgcatgctg aatgacctcc agaaccgcct 360
gcaagctggg gccaacctca gtgacccttt ggatcatggg gctactctgc tgcacatcgc 420
cgctggctaa tgggttcagt gaggtggcta ccctgctgct ggagcaaggc gccagctgan 480
gcgctaagga ccatgatggc ttggagcctc tgcatgctgc gg              522
```

```
<210> 285
<211> 583
<212> DNA
<213> Mouse
```

```
<400> 285
canaagctag gacggtccgc cgaggctcgg aggtggaggc gcangcttct ggangcgagt 60
atttcctaaa tgaccttaca ccctttgcca cactggtcct gggccaagat gggccaatca 120
aagtccttac ccagaatttt ttgaactgaa attgagagag aatccctctt cagtatggaa 180
gccataaaat gtaanacaca ggngctgtca gcagccatgt gtcctgcagt acggngccag 240
ctggtctgct gngagaagga agccgccgtg ccanaggcag nagngaacca tgtgtgctca 300
gtactggatc tcctttgctg atgttgaaaa agctcatatn aacattcaag actctatcca 360
cgctnacccc agtgntaaca agctcnattt tgantcaaat agnagggngc aatctttttc 420
ttcaaatggg agctcttcca gaanaactng gggnctttaa nnatttgagg tgcccttaaa 480
ntccatnann ggntttaatt cctgnncncc nccangaagn anagn_cccaa agncngtgng 540
ntncctcncn ggcagcggga aaccaatggn caaggctntn ncn              583
```

```
<210> 286
<211> 580
```

105

```
<212> DNA
<213> Mouse

<400> 286
ctactatggt caccactacc acacanaaag gacttcctcc ttggtgagcc tgttgggcat  60
tggcagaagc cccaanagca gtctccacac tgcactcaac gncagcctct tggccagccc 120
cgtagagatg gccacaacca gcanccccgg cagcacacac tcgggccang ctacagcggt 180
gntcagcctc ctcatcatgt tgggcacact ctggctangc tacaccctct accagttcaa 240
gaaaagnccc tacctgcacc catgtgtgcg tgagagcctg tntgactgtg ncctgnccat 300
nggncgtgnt ctccttctcc ctcatcggnt cctatggctt ccagggaatt gagatgagna 360
ngntccggta taanccatg cgagatcntt ttttaggtgg cccannatcc actntttgnn 420
ccttgaaggc caatngggan tgncatgggg tctgtgggtn ttctgnnanc cttgcttngc 480
ctttcantgn ggngaaccng gatggccggc ccctggttaa ntgcaccann agnannnggg 540
tggttttnaag ggaanttnct caatnactgg ggnncncctn                      580


<210> 287
<211> 639
<212> DNA
<213> Mouse

<400> 287
cttcctgtct tccgttgagc tgctcatcat tgaccaggct gacatttacc tgatgcagaa  60
ctgggaacat gtcttgcatt tgatgaacca catgaacctg ctgcccttgg actcacacgg 120
ggtggacttc tcgagagtcc gaatgtggag cctcaataac tggtccaagt actaccgaca 180
gacactgctc tttggtgccc tgcaggatgc ccagatcaac tctgtgttca caagcactg 240
catcaatgct caaggccagg tggctgtgag gaatgtcccc atgacgggct ccatcagtca 300
tgtgttggtg cagctccctc acgtcttcca gagaatggaa gcacaagacc tatcttcagt 360
gatcgatgcc aggtttcact tttttcataaa caagattttg cctcagtacc gggatgctgt 420
ntgtctcaca cactcatcta tgtccccttc ctactttgac ctttgtgcgt ctccgaaatt 480
actttcnaag aangaagagc tgaacttcac acacatctgg aagtatacgc ggaagtctgg 540
gattctccag ggctcganaa ttctttctgc aaggagagaa gcntttctgg ctcctcaaag 600
nacgntttca tttctncaaa aggnacacaa tnaaaaggg                         639


<210> 288
<211> 534
<212> DNA
<213> Mouse

<400> 288
nagngaagta attgaacgct ttaagaaaga tgaacactta gagaaagctt tcaaatgttt  60
nanntctggg gaatgggcac ggcattattt tctcaacaaa aacaaaatgc aggagaaatt 120
attcaaggaa catgtctttn tttacttgcg gangtntgca actgacagng gntttgaaan 180
acngccttgn aatagatntt cttcagaaca aaatggagcc aagatagttg caacaaaaga 240
gtggaaacga aatgacaaaa tagaatnact ggngggnngn attgccganc tttcagannt 300
tgaggagaac ntgctactta gacacggaga aaacgacttc agtgtcatgt attccacaag 360
gaaaanttgt gctcaactcn ggctcggtcc ngctgcattt ntaantcntg nttgcngacc 420
```

taactgtaag tttgtgtcaa ntggncgana tacagcatgc gnnaaggctc tgaganatat 480
tgaacctggg agggnggaaa tttcttgtta ctaaggagat ggctttttng gnga   534

<210> 289
<211> 551
<212> DNA
<213> Mouse

<400> 289
tgctgtgccc tttatacctg tgcccagctg gagaataatt tgtattggtg gggtgttgtt 60
cctttnagtc aaaggaagaa aatgttagag aaagctagag caaaaaataa aaagcccaaa 120
tccagtgctg gtatttcttc catgccaaac atcactgttg gaactcaggt gtgcttgaga 180
aataaccctc tctaccatgc tggancggtt gcctttcaa ttagtgctgg cattcctaaa 240
gttggtgtct tgatggagtc agtatggaat atgaatgata gctgtagatt tcaacttcgg 300
tctccagaga gcctgaagag catggaaaaa gccagcaaaa ctcttgagac aaagcccgag 360
agtaagcagg aaccagtaaa aacagaaatg ggccctccac catcaccagc atccacctgc 420
agcgacgcgt cctcaattgc cagcagtgca tccatgccta caaacgacgt cggtcaactc 480
ctggccccga gagaagagga gaaggtgaac gaggagcagt ggcccccttt cgggaagttg 540
tttttntttg a   551

<210> 290
<211> 547
<212> DNA
<213> Mouse

<400> 290
gacatggcag ccctgaaggt tctgccgcca actgtgtatt tgagagtcac tgagaacatc 60
cctcagatca ttgctttcat cgagggcatc attgctcacg gccatgcata ctcgacagct 120
acaggcagcg tctacttcga tctgcacgcc cgaggggaca agtatggcaa gctggtcaac 180
acggttccca gtgccactgc agagccagca ggtgactctg acaagcggca cagcagngac 240
ttcnccctgt ggaaggcagc caaacctcag gaggtgttct gggcttcgcc gtggggganac 300
ggacggcctg gatggcanat cnantgctct accatggcca ntgaggtttt cggaagccac 360
ctggacatcc acaccggcgg catagacttg gctttcccan atcacgaaaa tgaaatcncg 420
cagantgaag tcttccacca gtgtcagcag tggggaaatt acttcctaca ttctggtcac 480
ttgcatgtga aangcccaga aggaaaagat gtccaatgcc taaaaaaata ttatcancat 540
taagggg   547

<210> 291
<211> 540
<212> DNA
<213> Mouse

<400> 291
caatctgggc tcgctgcgtc acctcagcct tgccaacaac aaactaaaga acctgcccgt 60
taggctcttc caggatgtga acaatctgga gaccctcctg ctgtccaata accagctggt 120

```
gcagatccag ccggcccagt tctcccagtt tagtaatctt aaggaactcc agttgtatgg 180
caacaatctg gaatacatcc ccgaaggagt ctttgaccac ctggtaggtc tcaccaaact 240
caacctgggc aacaacggct tcacccacct atcccctagg gtctttcagc atctgggcaa 300
cctccaggtg cttcggctat atgagaacag gctttcagac atccccatgg ggacttttga 360
tgcacttggc aacctccagg agctgggcct ncaagagacc agattggcnc cctcttccct 420
ggcttgttcc acantaaccg taacttncag agnctgtatt attccagnaa ccacatttca 480
natttgcccc tggcatcttc atggnagctg ncccacntta acaggctnan aatttttggg 540
```

`<210> 292`
`<211> 577`
`<212> DNA`
`<213> Mouse`

`<400> 292`
```
gnggtcatta ggaaacaata atagcatctt tnnnntcgag ctcttgctgt ttcctaatga 60
ccaggagttc gtggagcagc aagagctcga ctccaaagat gcnattaanc nnnntcagnt 120
cgnagnnncn aanaatggnn tcnccancnt gtcnccnntc tgtttgaaaa tgggaactta 180
cttaagaatg gctgacctnc cctcatcaga actattttgg tggaaaactc tctgctcaag 240
ggaagatgcc ttggattgaa tataataatg aaaaagtgtc tggnacagaa ttcataatcg 300
actttctgga agagaaactt ggagtgaact aaataaaag cctcggcccc catgaaagag 360
ccgtctcaag agccgtgacc aagatggtgg aagagcactt ctactggacg ttagcttatt 420
gccagtgggt ggataatctc aatgagaccc ggaagatgct gtcacttagt ggcggcggtn 480
ccttcagtaa cctgntcagg tgggtcntgt gnccacataa ccaaaaggaa ttgtgaagcg 540
ggagatgcac gggccacggc antggncgct tagntgg                           577
```

`<210> 293`
`<211> 565`
`<212> DNA`
`<213> Mouse`

`<400> 293`
```
ggcagagaag gacatgcagg tcgtagaaga actcttcagc tgtggagacg tgaacgccaa 60
ggccagtcag gcgggacaga cggccctcat gctagctgtc agtcacgggc ggatagacat 120
ggtgaagggc ctgctggcct gtggagctga tgtcaatatc caggacgacg agggctccac 180
cgccctgatg tgtgccagtg aacacgggca tgtggagatt gtgaagctgc tgctggccca 240
gccaggctgc aatggccacc tggaagacaa tgatggcagc accgctctct ccatagccct 300
ggaagctgga cacaaggaca ttgccgttac ntctgtacgt ncacctcaan ttctcgaaag 360
cccagtcccc gaggcttggc agaaagacat ctcctggtcc cactcaccga ggttcttttg 420
actgattatg taagcatnnc ccttgtgtgt accaccacga agctgctagt tattcctgtt 480
ggggtgacag atactgaatg taaatggncc acaccaagct gaccagcaga cagaagagtt 540
aaggagcggc tnaaggctga tnctn                                        565
```

`<210> 294`
`<211> 559`
`<212> DNA`

<213> Mouse

<400> 294

```
cngaaagaag aactccctga aggactgtgt ggcagtggct ggccccctgg gggtcacaca 60
cttccttatt ttgaccaaaa cagataacag tgtatacttg aagctgatgc ggctcccagg 120
aggccccact ttgacgttcc agatcagcaa gtatacactg atacgggacg tggtctcttc 180
cctgcgccga caccggatgc acgagcagca gtttaaccac cctcccctcc tggtgctcaa 240
cagcttcggc ccccagggca tgcacatcaa gctcatggnc accatgttcc agaacctgtt 300
cccgtccatc aacgtgcaca cggtgaacct gaacancatt aagcgctgcc tccccattaa 360
ctacaaccct gantnccaag agctggantt ccgncantac agcgtcaaag tggttcccgt 420
tggtgcaagc ngcggcatta agaagctctt acaggggnag ttcctaaana tgagccgact 480
ncaggncatc agttgggctg ntggccacgg gtttggggta tcagacantn aggttggagc 540
ncgatggaga aaacaacac                                                559
```

<210> 295
<211> 585
<212> DNA
<213> Mouse

<400> 295

```
cggagactta ttgtcaataa gaatgctggc gagaccctcc tgcagcgggc tgcccggcta 60
ggctatgagg aagtggcctt atattgcctg gagaacaagg tctgtgatgt caatcatcga 120
gacaatgctg gctactgtgc tctgcatgaa gcttgcgcca ggggatggct caacatcgtg 180
cgccacctcc ttgaatatgg cgctgatgtc aactgcagtg cccaggatgg aaccaggcct 240
ctgcatgatg ctgtggagaa tgaccactta gaaattgtac gattgcttct ttcctatggt 300
gctgacccta ctttggccac atactcaggg agaaccatca tgaaaatgac ccacagtgaa 360
cttatggaga agtttttaac agactattta aatgacctgc agggtcgcag tgaagatgac 420
accagcggcg cttgggagtt ctatggcagc tctgtgtgtg aaaccagatn acgaaagtng 480
gtacgatgtt ttgggctaat ccccccaggga ccagaagacc cagatgaggg agaggtacct 540
atagcgnttt gtttgngttt gagttgctga aagcnccccn cctgc              585
```

<210> 296
<211> 585
<212> DNA
<213> Mouse

<400> 296

```
gcaagtcaga ggccaaaatg gtgttgttct ttaacaatct caccagcttt gaggagcagt 60
taaagcgacg gggagagttc gttgaggaaa ttcagaaaca cctgtgtcag ctgcagcaag 120
agaaaccatt taaagtgaag tttgaggtgc agagctcaga ggagcccaac tccaggtctc 180
tgagcttcaa gctgagctcc cccgagctcc agcaggaggt ggaatttgat gtgcagccag 240
cctatgatgt cctatatgaa ctgagaaaca acacgtatgc tgaaccccaa ttctacaaca 300
aagtctacgc ccaactcatc catgagtgca ccaccctgga gaaggagggc gatttctcca 360
tctgcttcac cgacctccat cagaacttca tgaggtatcg tgcgcccaag ctctggaacc 420
tcatccgtct ggtcaagcac tggtatcaac tgtgtaagga gnagctgagg gagccgctgc 480
ccccaaagta cgccctggag ctgctccact gtctatggaa tgggaacatt cggatnaaaa 540
```

```
atccnaggna aaaggtaacc ccagcccagg ancttccggn ccttn                585
```

```
<210> 297
<211> 578
<212> DNA
<213> Mouse

<400> 297
tagctaatag atcatttagt ggataatctg tcaactgaca tccagttaca gccttttcat 60
tttgctcact ttaggtatct tggactgagc agtggggcct ttactgtatt tttcctgata 120
agtacacaca atagccactc cctaccacct ctttcttgaa aagtgaaatc ttttaagcag 180
ggaagtgagc atccgtttac tgcagctgtg attttttacag taacctttct atattgagcc 240
tatggggtat gaagatttgc aaaatcttgt ttgtttagag ccaataaaag tttaactgat 300
ggtcaatact ggtttagaaa ttttaggtct tctaaaccat agcttttttca ggtctgaaat 360
aattttattg ccaaaattat gacaggaagc ctcctcatta aattgttaca ctttttcacg 420
gttgtgtgaa agtttgaact aatctaaaag tatgatcgta attgtaccat attagcgtac 480
agcaaaacga ggcagccact tgtgagcagt aattttccct gggagcagca ggggnctagt 540
gggacccaaa cctggccttc ctgttgggtt cagcattc                        578
```

```
<210> 298
<211> 527
<212> DNA
<213> Mouse

<400> 298
aatgaagggc aagagcgtgg tcacagcccc catcatcaaa ggcaaccttg gagccaatct 60
cagtgggctg ggtcgcaaca tcatcctcac gaccatgcca gcaggtacca aactcattgc 120
tggcaataag ccagtgagtt tcctcactgc tcagcagttg cagcagcttc agcaacaagg 180
tcaggctaca caggtgcgca tccagaccgt cccggcatcc catctgcaac agggcacggc 240
ttctggctcc tccaaagcag tgtccactgt tgttgtgacc acagctccat ctcctaaaca 300
agcacctgag cagcantgac cgaggagagg cggcttctct aagagaccag gcccggtgga 360
tctcggccga nagaaaggga gcagcaggag gctgcatcgt tcttctgagc tgtcctgctt 420
gaggcanggt ggtggagagt gatggcaact gcggcctagg ttctgctgcc acgctccaga 480
gtgaagctct gaaaggggtc cctctttaag gctccagggt aatnttt                527
```

```
<210> 299
<211> 533
<212> DNA
<213> Mouse

<400> 299
gacaagtgcc cacactgcag aggaaaccac aagcagcaac cacagcagcc tagacctgac 60
cagcacatgt gtctcgtcct cggnaccttc caagtcctcc ctaatcatga acccgcatgc 120
ctctaccaat ggacagctct cggtccacac tcccaaaagg gaaagcttgt cccacgagga 180
gcaccccac agccancctc tctatggaca tggcgtatgc aagtggccag gctntgaggc 240
```

```
ggnttgtgac gacttcccag nctttctaaa acatctnaac agtgagcnng cgcnggganga 300
tagaagcaca gcncnatgta gngtacaaat gcaggttnta cagcagtnag ancncacagct 360
tgcaaaagac aaagagcgcc tgcaagccat gatgncccan ctgcatgnna agtctacaga 420
acccaaagct ggncctcagg ccctgaatct ggtatcaagt gtnngccnct ccaagtntgc 480
ctcagaggct ttntcnanag aagttacctn atacttccaa naaaccccca gcg      533
```


```
<210> 300
<211> 564
<212> DNA
<213> Mouse
```

```
<400> 300
aaaaaacatt cagtgtgttt cctgtaacaa atccttcaag aaactctggt cccttcatga 60
acatatcaag attgtccatg gatatgcaga aaaaaaattt gcctgtgaaa tttgcgagaa 120
gaagttctat accatggctc atgtacgaaa acacatggtt gcacacacaa aagacatgcc 180
atttacatgt gagacctgtg gaaagtcttt caagcgcagt atgtcactca aggtgcactc 240
cttgcagcat tctggagaga aacccttcag atgtgagaac tgcgatgaga ggttccagta 300
caagtaccag ctccgctccc acatgagcat ccacattggg cacaagcagt tcatgtgcca 360
gtggtgtggc aaggacttca acatgaagca gtacttcgac gagcacatga agacgcacac 420
tggagagaag cctttcatct gtgaaatctg cggcaaaagc ttcaccagcc ganccaacca 480
tggagaggca ccgcagaact cacacagggc gagaagccct acccctgcga tgtntgcggg 540
tcaangggtt ccgcttttc caaa                                        564
```

```
<210> 301
<211> 564
<212> DNA
<213> Mouse
```

```
<400> 301
gagaaagagg aggcccggct ganagccaag gaggccaagc agacccngca gcatttcctg 60
gaacagcatg aacgcatgac ctccaccacc cgctaccggc gggcanaaca gacttttggg 120
gacntggagg tctgggctgt ggtccctgag ananatanaa aggaagttta tgatgatgtc 180
ctcttcttcc tggccaagaa gganaaggaa caagccaagc agctccggcg tcggaatatc 240
caggccctga agagcatccn ggatgggatt agcagtgtca acttccaaac cacttggtcc 300
caggcccagc agtacctcat ggataacccc agctttgctc aggaccagna nctgcagnac 360
atggacaagg aagatgcact tatctgcttt gaggagcata tccgggcttt ggagngacag 420
gagganggat nanccaaaaa cggggcccgg cttcggggaa ncgggagaca gcagccggaa 480
ngaaatcggg agggnctttn aagagcttct tggacgagct gcatnaanac atgggannct 540
ngaacttcca tgttcnacct tgga                                        564
```

```
<210> 302
<211> 524
<212> DNA
<213> Mouse
```

111

<400> 302

```
agtgttttgc gaacgccaag cacatagcca tcatctcggg ggctggcgtt agtgcggaga 60
gtggggttcc cactttcaga ggcgctggag gttactggag aaaatggcag gctcaggacc 120
tggcaacccc tcangccttt gctcgaaacc catcacaggt gtgggagttt taccactacc 180
ggagggaggt catgcggaga aagaacccaa ccccgggcac ctggccattn cccagtgtga 240
agcccggctt cgtgaccagg gcagacgggt tgtggtcatc acccagaaca ttgacgagtt 300
gcatcgcaag gctggcacca agaaccttct ggaaatccac ggaaccttat ttaaaactcg 360
gtgtacctcg tgtggcactg ttgccgagaa ctataggagt ccgatctgcc cagctttagc 420
aggaaaaggg gccccananc cagaggtcaa gacgccagaa tcccagtccg acaaactttc 480
cccggttcga ngaaggcagg attcggaggc tttctncgaa ctca                   524
```

<210> 303
<211> 514
<212> DNA
<213> Mouse

<400> 303

```
angacgacta tctccagccg accactgcct cttttacggg ctttctggcg gcagagaatg 60
gtcaaggtga gctcagcccc tatgaaggga atctctgtgg tttgacgacc tttatagagg 120
ccggtgcaga agaaagcgtg aacgctgacc tgggtgacaa acagtgggag cagaagcaga 180
tcgatggtct tgatggcgaa tttcccttca ccatgtggga cgntgttaat gnccnagnng 240
atcccatagn tgaagaacag gctggtnagt canccccga ttattcngag tatangacnt 300
ganagaaatt tcctcctgna ggaatacctg gcnttgatct ttctgnntcc aaacaactgg 360
cagantttac tagcatgata nccaaaaagc caaaggaga ctttccaaga cctatagcat 420
gctcccataa nggctgcgag gangangttc aaagnnantt tctgctntga gaaagccttg 480
gccatccttg gggcnaggag tgcanttctg ttaa                             514
```

<210> 304
<211> 520
<212> DNA
<213> Mouse

<400> 304

```
caacagtcgg agaccccacc gccctcatac ttgcgcctct tcacttccct ctcttggtct 60
gcctgctccg caagttcatc cagaaaagcc actggcgtga gcacatgtac attcacacgg 120
gcaaaccctt caagtgcagc acctgtgaca agagcttctg tagggccaac caggccgcac 180
gccacgtgtg cctcaaccag agcattgaca cctacaccat ggtggacaag cagacactgg 240
agctctgcac gttcgaggaa ggcagccaga tggacaatat gctggtgcag gccaacaagc 300
cctacaagtg caacctgtgt gacaagacgt tctccacacc caatgaggtg gtcaaacact 360
cctgccagaa ccagaactca gacgtgttcg ccctggacga ggggcggtca gtcctgcttg 420
gcagtgggga ctcagaagta actgaacctg accaccctgt gttagcgtcc atcaaaaagg 480
aacaggaaac tgtgttacta gactgaatgt tacttgtgtt                       520
```

<210> 305
<211> 513

```
<212> DNA
<213> Mouse

<400> 305
agaaaatgga aagtgccaga tgagatttta gcattgcagg gcaaaaggag gaaatgcatt 60
attggtatgt gtggagatgg catagaaaga gcaagaaaca gtccccaaga agccagagac 120
cagaagccca gggttgcttc aaggaagtat cgtaacatca tgcccaagcc tgtccttgtc 180
ctgtctgctt tggcacccct ggcgtctcat acggctgtgc tgtctcaggc tcccagcagc 240
ctaggtcaag atgttctgaa taatgccctg ccttcaaaat gtcttggctc caagcaaagt 300
gacagctcta cccctaagcc cagctctgta ctccgaaatg gattctctgg cattaaaaag 360
ccctggcaca tgtgtccagt ctgcaactac cactttcaat tcaaacacca ccttctagac 420
cacatgaata cacacaccaa cagacggcct tatagttgcg ggatctgtcg caagacctat 480
gtgcgccccg gcagcctgag tgcacatatg aaa                                513


<210> 306
<211> 572
<212> DNA
<213> Mouse

<400> 306
gaagcgagca acagcatcca gtttgtcatc aagagacccg aactgctcac tgacggtgtc 60
aaagaacctg ttctggacac tcaagagagg gactcctggg accgtcttgt ggacgagacc 120
ccgaagagac agggccttca agaaaattac aacaccagac tctcgcggat cgacatcgcc 180
aacacgctta gggaacaagt ccaagacctg tttaacaaga aatacggtga agctctgggc 240
atcaaatacc cagtgcaggt gccctacaag agaatcaaaa gcaacccagg ctcggtaatc 300
attgaaggcc tacccccggg gancccattc cgcaaaccct gcanctttgg ctcccagaac 360
ctggaaagga ttctctctgt ggctgacaag atcaagttca cggtcaccag gccattccaa 420
ggncttatcc caaagcctga tgaggatgat gccaacagac tgggggagaa ggtgatcctc 480
cgagagcagg tgaaggagct cttcaatgag aaatacggtg aagcctgggg atgaatcggc 540
tgtgctggtc cttaaaaact gatcgggaca gc                                 572


<210> 307
<211> 569
<212> DNA
<213> Mouse

<400> 307
caaaagaaga actggagtgt atgtcagagg gagatgttga ggattttcca accttcggcg 60
actcccagag cgactatgac acggtggtcc accctttcta cgctcactgg cagagtttct 120
gcacacaaaa gaattttttcc tggaaggaag agtatgatac ccggcaagcc tcgaaccgct 180
gggaaaaacg agccatggaa aaagaaaaca aaaaattcg aganagagca aggaaagaga 240
aaaatgagct ggcgcaccag ttcattttttc tctttccttg ctctggtgcg ccactggtag 300
ccttcattcg taaacgagat aagagagtgc aggcccatcg gaagcttgtg gaggagcaga 360
acgcagaaga aggcgaggaa ggcagaggag atgaggaggc agcagaagct gaagcaagcc 420
aaactggcag agcagtacag agagcagagc tggatgacca tggccnattt nngngaaggn 480
gcttccagga gnatggaagc nagggtacga ggaaggaggt ttggagatgg gntcagattg 540
```

113

```
aaaacngagt ggcaagggat cantagncc                              569
```

```
<210> 308
<211> 536
<212> DNA
<213> Mouse

<400> 308
gccaatggca acttggacga gcctttccct ccccggccca cggccccact tcctgaggag 60
cttgcccctt cctcagatgc caatgataat gagttacctt ccctgagcc agaggagctc 120
atttgtcccc aaacaactca tcaaactgct gagcccactg aagacaataa caacaatgtg 180
gccccagtac cctccacaga acagatccca agtcctgtgg ctgaggctcc ttcagaggag 240
gatcaagtcc ctccagcacc tctttccccc gtcatccatc ctccagcagc atccgcgagc 300
aaacgcacca acctgaagaa gcctaactct gaacggacag ggcacgggct gagagtgcgc 360
ttcaaccccc tagccctgct tctggacgct tctctcgaag gagagtttga tctagtgcag 420
aggatcatct atgaggtgga ggaccctagc aaacccaatg acgaagggga tcanccccct 480
acaacaatgc tgtctgtgct nggcaacacc atatcgtgaa gtttctgctg gacttt     536
```

```
<210> 309
<211> 534
<212> DNA
<213> Mouse

<400> 309
cagaaatgaa aatccctgta gatctggaaa aggtcgtccc tggatttgaa gcttggtctg 60
agaacttcta cactgtgtgg cttcagcaca ctctaactct aagggaggtg ctcgactcac 120
tcaagactta ctggccaatc agagcctcca ggcagacctg cgtgtcagaa gagaaggcgg 180
gttttccggg tgcggtggtg tcggtttcgc ttcctggttg agtgcttgaa tggttctgtg 240
tgccgtgctc cgtttcctgc ggttggatgc tgtggattgt gcacaggcaa gctccgaagt 300
tgcgacatgg atgtgttgac ccatgatgat gtgcatgtga acttcactcg agaagaatgg 360
gctttgctga atccttcaca aaagagcctc tacaaagatg tgatgctgga gacctatagg 420
aacctcaatg ctataggcta caattgggaa gacaataata ttgaagaaca gtgtcaaagt 480
tccagaagaa atggaagggc atgaaaagaa gacttattgg agagaaacgc tcct      534
```

```
<210> 310
<211> 510
<212> DNA
<213> Mouse

<400> 310
ntncgactat gatgcctggg caaaacttga tgtggacagg attctcgacg agcttgacaa 60
agaagacagc acccacgatt ctctgtccca ggagtcagag tcggatgaag atggcattcg 120
tgtggattcc cagaaagctc ttgttctaaa agaaaagggc aataagtact tcaagcaagg 180
aaagtacgat gaagccattg aatgctacac gaaaggcatg gatgctgacc cctacaatcc 240
cgtgctgcca acaaacagag cgtcggctta cttcagactg aaaaagtttg ctgttgctga 300
```

```
gtctgactgt aacttggcca tcgccttgag caggacttac accaaggcgt acgccaggcg 360
aggtgcagct cggtttgctc tgcagaagtt agaggacgcc agaaaagatt atgagaaagt 420
gttagaactg gagccagata actttgaagc aacaaatgaa ctcaggaaaa ttaatcaggc 480
tttgacgtcc aaggaaaact cgggtcctgg                                    510
```

```
<210> 311
<211> 551
<212> DNA
<213> Mouse
```

```
<400> 311
ctgtggggcc gagcaatatg acttgaactc tcttaccagc tttcaaaggt gtacggaagc 60
ccanactggg aatgggcctt gtgagtgtga ggtatgctta agatcttcct gttttccaaa 120
tccactagga acacatcaag aggctcacag tggaaaaaca ccctatcaat acaaggagtg 180
tggaaagaac tctgtttgtg cacatggagg aagccccact atgggaaagt tttatgaatg 240
taatatatgt ggtaaagcct tgagctcctc tactgccctt caaagacatg aactaattca 300
caccgaaaga ttctacgaat gcacgtattg tggtaaagct tttagatatc ccaaatacct 360
tcgattacat gaaagaattc atactggaga gaaaccctat gaatgtaaac aatgtgggaa 420
agctttagat ttcctggtgn cctggccatt acatgaaaaa attcacactg gagaaaaacc 480
ctataagtgt aaacagtgtg gaaaagcct tagatttcct gggttcctgc cattacatga 540
aaaaattacc c                                                        551
```

```
<210> 312
<211> 572
<212> DNA
<213> Mouse
```

```
<400> 312
ccctgtagtc cagaactggg gaggccagga gagccgttac tcactccatg gctctcagac 60
cgcgttcctc tttggccttc cttccagccg agccgtcacc ataagtaaat caagtccctt 120
cctcccagtc acacggctga gcgcagacgg cttgtttttaa aaagatgatg aacatgacag 180
tattttgttt tgctttgatt tgggggggaa gggttcatct tgcttttgga ggttgttttg 240
gggaaaaaac agtttatata aactgatttt tgtagttttg gtatttaaag caaaaacaaa 300
caaaaaacaa accccttttt ggtacctgca ctgcatccct cgggtggggc agtgcctact 360
ttggaagatg ctgcagcctg cgaggggatc tgctggggct tccccttcgc cacacagaag 420
cctgcttagt gctttctgca ccagacaacc tgttgaggcg tataacctga tctgtacatt 480
ttttttaagtg tgcagggcag cctggacaca gcttagcgtt ctacgtgtat agttctccat 540
gctcactaac tctccttctc ngggaagcag at                                 572
```

```
<210> 313
<211> 537
<212> DNA
<213> Mouse
```

```
<400> 313
```

```
gtacagcacc tggctcgcta tgtggagcag tatgtggggt ctgagggtgc atccagctca 60
tctactgaag gcttcctgct gaagccggtg ttcctgcaga ggaacctgaa gaagttccgg 120
cgttggcagt gtgagcaggt acgtgccatg cgcggtgagg ctaagagctc ctggaagcgg 180
ctcatgggcg tggagagcgc ttgtgatgtg gactgccggt tccgcttggg cacacacaag 240
atggtgttca tcgtcaattc cgaggactac atgtaccgcc gtgggacact atgccgtgcc 300
aagcaggtgc agcccctggt gttgttgcgc caccaccggc acttcgagga gtggcatggt 360
cgctggctgg aggacaatgt aactgtggcg gcggcagggc tggtgcagga ctggctgatg 420
ggtgaggaag aggaggacat ggtaccctgc aagacgcttt gcgagactgc gcatgttcac 480
gggctgccgg tgactcgcta ccgagtgcag tacagccgcc gccctgcttc accctga   537
```

<210> 314
<211> 546
<212> DNA
<213> Mouse

<400> 314
```
cggaacantg agtcggtgac ccccaatcca cggtccccac ttgaggacta ttccctccac 60
atcattgacc ttcacactgg ccgtttgtgt gacacacgca cattcaagtg tgacaaagtg 120
gtcttgtcgc acaatcaagg gctctacttg tataaaaaca tcctggccat attgtctgtg 180
cagcagcaga cgattcatgt cttccaggtg acccctgaag gcacctttat cgacgttcga 240
accatcggcc gcttctgcta tgaggatgac ctgctcactg tgtctgccgn tttccctgag 300
gtgcagcggg acagccagac aggcatggcc aacccttca gggacccttt catcaactcc 360
ttgaagcacc gcttgctggt ttacctctgg cgccgggcag agcaggatgg cagtgccatg 420
gcgaagaggc ggttcttcca gtactttgac cagctgcgcc aantgcgcat gtggaagatg 480
cagctcctgg acgagaacca tctgttcatc aagtacacca gcgaggacgt agtgaacgct 540
gcgggt                                                         546
```

<210> 315
<211> 519
<212> DNA
<213> Mouse

<400> 315
```
gaaagggtaa ttcggtagaa ggttagaaaa tgcagagagc aaacatgtca ccaatttacc 60
ctttcattct acttcttaag gaagccgtat gaattttaaa ataggggaatg tttaaaatgg 120
tccaaatcaa atattgttat aataaattct gactacaatt aaagacaatt cataatatgt 180
gtgtgtgtgt gtatggaatt ttaagaaaca tttctttcaa atcagtttct aacaaattca 240
ggacagttaa gagtagagct ggaatgattc tgaaatctac acttattttg gttaacaatt 300
ttccatgtga ttcttttgta acacaggaca gtacctgctc tcaggtgtgg ttacatcacg 360
ttgctctctc acagatggaa gaaatggcag aggtctgaca agaatatccc tttatgggt 420
ttttctagca agganaacag aataaactta ggaaaatact aatttccccc aacccttat 480
gtagactgag gatcttgtgt actttgtcaa ncatccagt                      519
```

<210> 316
<211> 569

```
<212> DNA
<213> Mouse

<400> 316
cccacatgca gctccacaag ccgacccagg agccttttgt gtgcaagtac tgcaacaagc 60
agttcaccac cctcaacaga ctggaccggc acgagcagat ctgcatgagg tctagccacg 120
tgcccatccc angaggaaac ccaccgttct tggaaaacta ccccactatt ggtcaagatg 180
gaacttcatt cagaagcccg gaatcattag gccagaaaa taggattggc gaactatcca 240
gcgcggggag tgccttgtca gacgcggacc acatggtgaa atttgtgaac gggcagatgc 300
tctacagctg catcgtgtgc aaacgtagtt atgtgacttt gtccagcctc cggcggcatg 360
caaatgttca ctcgtggaga agaacatacc cttgccatta ctgcaacaag gtctttgcgc 420
tggctgagta caggacgcga catgaatctg gcacactggg gagaggcggt accagtgcat 480
tttctgtctt gaaacttta tgacctacta catactaaaa aaccatcagg aagtctttca 540
tgncatagat tcacagactc tccattcaa                                    569


<210> 317
<211> 571
<212> DNA
<213> Mouse

<400> 317
gganaagggc cttagcagaa gctcgcagtg ctgcgcaggt agccctgtgc atccagcagt 60
tacagagatc aatagcatgg gaaaaatcaa ttatgaaagt ttactgccag atctgtcgga 120
agggcgacaa tgaagagctg cttctactct gcgacggctg tgacaaaggc tgccacacct 180
actgccacag gcccaagatt acaactatcc ccgatgggga ctggttttgc ccagcttgca 240
tctctaaagc aagcggccag agtataaaaa ttaaaaaat tcatgtcaaa ggaaaaaaga 300
caaatgattc caagaaaacc aagaaaggan acgtcgccgg gggacacaga ggntgaagac 360
tcggcttcca caaagnagct ccctcaagga gangaagcaa agagctccaa aagagggaaa 420
atgggggaaa accactttcc ctcaaccctnt nnaaagcggg aaaggcacca cctcccattn 480
agnnaaccca aaaaaagatg nggtcccagg gacctgggct ctctgcagna tgggtcctga 540
cttnaaattg gggaccattg aggnctnccc t                                571


<210> 318
<211> 577
<212> DNA
<213> Mouse

<400> 318
cccagtacct tccaaaggtg ttggggcgtt ttggcaactg agaaggttgg agccccggac 60
ataaggttcg aagatggcgg ngcgcaaggg ccggattcgc acgtgtgaaa ccggagaacc 120
catggaggct gaaacctgcg ncccaggaac cgaaggccca tcccaggtct accngnccgg 180
caaanngccg ccactgancn agnngagacg agctggnaan ggangaagag gcctacgtgn 240
ngtaccancg tgcgcaaant ggcgcccctt gnntcagnnt tgacatagtt cgagatcacn 300
tggggcnaca accggacaga gntccctctc ngtntttacc tgtgngcggg aacccaatgc 360
gggatancgc ccagagcaat agnctggtga ngcnncggga tgcacaaatc ctccaatggg 420
caannaggcc cgtcaancct tccagngggc antnntganc nattnnggga agattggnnt 480
```

tnaaggagga ttaaggagga tcccggaaan cctcaggntg gganattggc caatggtttc 540
cnccntaacc ggttgggcaa taaaccnggg gntcngn   577

<210> 319
<211> 544
<212> DNA
<213> Mouse

<400> 319
cttttgggat ccgttcncca agttcaggag ntctgcanac cccagttggg ncttaatctc 60
cccnacctgn gntngctaag gcnacccaan cttggatncc agaggaagac tttcttgtnn 120
cttcttcctg gngccanntg aacgtcngaa tnctcanagt ngccatcttg cttcngttct 180
gcctttgnag agcttctgag ccnctnaagt ccagccctgg tgtnttgaga agccaaggga 240
atcncagcct cagcnacggc cgtggnggca ggnggggttt agcncagtca aacgctangn 300
nccangnntg tcntgtgatg cgtagnntac ntctccatgg gaaatncctn gactgccaat 360
aaagnanata gtctatgtgt ttcctggtgg gctcangatt tgcctgcnna ttctgtagca 420
ngtgtncaaa aatccgcnnt ttnaannacg anntntttgn tgcgtttaaa agggtgaaac 480
aagncntgna nctntggnat aaccggggac ctcccaaaga ttgagacccc cgggcgtttt 540
ttnt   544

<210> 320
<211> 546
<212> DNA
<213> Mouse

<400> 320
accagagtag gcaacatatt cccaaaagcg ggagagggcc tcagcaaaac tcgcctttcc 60
ctcagaaatt tccggggaca cctagtgcag aatctgggcc aaggacactg cccagggtct 120
tgcggagacg tgaaaactcc cgagagccgc aggtgccgcg cggggcatcc tggtagagtc 180
agcagcgcgg cggcggaaac cgcagcccgg cggccctgga acctcccagg actcactgat 240
gaagtggaac agcgagtgct ggatggtgaa gagagagaag acaaaggatc caggtacaaa 300
agtacaagaa gagaaaagtc agaaaaggac aatagggaga aatggctggt tctccggtaa 360
atacattcca gggtctgttg acattccgag atgtggctgt ggacttctcc caggaggagt 420
gggaatgcct ggactctgct cagagggctt tgtacattgg tgtaatgtta gagaattatn 480
gcaacctggt ctctgtgggt attattgtgt gcaangcaga cctggtcccc catctggagc 540
aaatct   546

<210> 321
<211> 553
<212> DNA
<213> Mouse

<400> 321
gaaagatgat gancagnant ttattcaaaa atctcagcct gtttctctgt ncctttctaa 60
aagcgcacgg tcaanttcta gaaaaacgac tgnatctcng ggaagcactc atggaggctc 120

118

```
ttcattatat  nttgttggtg  tctgnacgtg  gaannaactg  aaattttaa  aatctgcctt  180
gagtnctggn  atcatttggc  agctgagctc  tacagagnga  gtccattttc  tanatctgct  240
tctcccttgt  tatctggaag  tcnacacttt  gatattcctc  ctaggagaca  gctgtacttg  300
accgtgttat  caaaggtccg  tttattgatg  gttagtcgċa  tggctaaaac  cagnggaggt  360
actggttgta  gaaaatgatc  agggagaant  tgtaagagag  ttcatgaagg  atactgattc  420
cctaaattta  tataagatat  gagagnaanc  attagtttat  cttactcatc  tggattatgt  480
anatncggga  ataataatgg  ctaanaaact  tcaaaatcca  gtgaatgggt  ncgaatggtc  540
tggaagaatt  tta                                                          553
```

```
<210>  322
<211>  580
<212>  DNA
<213>  Mouse
```

```
<400>  322
agatgctagt  ccattttgag  cgctggagtc  atcgatatga  tgagtggatt  tactgggaca   60
gcaacaggtt  gcgacccctt  gagagacctg  cactaaggaa  agaagggcta  aaggatgagg  120
aagagctctt  tgattttaaa  gctggagaag  aagtactggc  tcgttggaca  gactgtcgct  180
attaccctgc  caagattgaa  gcaattaaca  agaaggaac  attcacagtt  cagttttatg  240
atggcgtaat  ccgttgttta  aaaagaatgc  acattaaagc  catgcctgag  gatgctaagg  300
ggcaggactg  gattgcttta  gtcaaagcag  ctgctgcagc  tgcagcgaaa  aataaaacag  360
ggactaaacc  tcgagccagt  gctaacagca  ataaagagaa  agagagagtg  ggggaaaatg  420
gttcaattac  cttcaaagaa  ggcagagact  tcaacgtgca  tagtcacagn  ggggattgag  480
aagaaggngg  gactacccac  atccagtgga  aacatttgta  gggcttccca  tagacacccg  540
ttccanagan  cgtctttcca  cagncagngg  agcacattta                          580
```

```
<210>  323
<211>  538
<212>  DNA
<213>  Mouse
```

```
<400>  323
nttgcctggc  atccctgtgg  ctaagncggc  ttactccnnc  cacgtgtctg  nggatggcca   60
gantcagcct  gtgcccttcc  cgtctgatgc  tctggtaggc  acaggcatcc  ctcgccaagc  120
aaggcagcta  cacacgctgg  cccacggtna  ngnggtntnt  gccgtnacca  tcagcagctc  180
cacacagcac  gtgtacacag  gcggnaaagg  atgcatgaag  gtntaggncn  tnggccancc  240
gggtancaag  acccctgtgg  nacagctgga  ttgcctgaac  cgaganaact  acatccgntc  300
ctgcaagtgc  ngcncgatgg  gcagaacctg  attntagntg  gcgagggcca  gtaccctgtc  360
cattttggat  ctngcagnac  ccacancang  gatcnacnca  gagctgactt  cgtntgcccc  420
gggcctgnta  tgctctggnn  gtnagttggg  anggcaaagn  nacttcnact  gtggagcgac  480
tngtaacatt  gtggntctng  ggaactncnn  aaacanggcc  atgggnanac  nctttcca    538
```

```
<210>  324
<211>  578
<212>  DNA
```

<213> Mouse

<400> 324
agaatttctg agtcactata aggnncacna cagnatagat tatgtgtttg tgtcagaaaa 60
aactaaaacc tcaattaaaa ctgaaggcga ttttaaaata gtaganacca gtantttact 120
aagctgtggc tgtcatnana gttacatgtg taaaatcaac agaaaggaat actatgaccg 180
atgccttcca gtcctgctgg agaaaggtag gctgtggttt cgctgcagct cgtgctcagc 240
cacagnacag aatgtgaccg acattaacac tcacgtctgc caagtgcaca nnaaagngaa 300
nagtgaggag gngcagcagt atgtgntcaa gtgtggcatc tgnaccaagg cattccagan 360
cacggagagc gctcagcagc acttccacag gaagcacgcg gccctccaga aacccaccgc 420
gaccccaggg ggagccaaca ggaagcagnn catgccatct ggctgctagt gcctcacatg 480
ctgagaaaaa cctggaaatc aagctaactc tcagaaaaca ttcagacgtg gaaaaaggaa 540
gctgagccat gatggtacgn tgncagaaac atagaggg   578

<210> 325
<211> 570
<212> DNA
<213> Mouse

<400> 325
gcaggagaag gatttctgcc cgctggaccg caagcggctt catttcaagc tgtgtaagaa 60
gtctagcatc ctggtccaca agctgctgga caaactgctg gtcctgtgtc cgttctctcc 120
cgtgtgccaa gatgtgatgc agcgntgtga cctagaggca catcttaaaa acaggtgtcc 180
tggagcctct caccggagag tcgatctaga gagaaggaaa acgagtcaaa ctcaaacaca 240
gattgagggt gaaactggat ctactgtcat agatcctcca ggcaccttgc ccccagaaac 300
ggactgctcg ggcaccgtgc ctggcgagag gaacttgaca ccagcatctc ttcctgtgtg 360
gaccgaggag cctggcctgg acaaccccgc cttcgaggag agcgctgcag ctgactctgt 420
acagcagccg cttagtttac cagaaggaga gatcaccacc attgagatcc accgctctaa 480
nccgtacatc cagttaggaa tcagcatcgt gggcngcaac gagacaccac tgatcaacat 540
cgtcattcag gaagtttacc ggggacgggg   570

<210> 326
<211> 554
<212> DNA
<213> Mouse

<400> 326
caaacatttg gctagagtat ggccagtact cagttggtgg cattggtcag aaaggtggcc 60
ttgagaaggt tcgctctgtc tttgaaagag ccctgtcctc tgttggcctg cacatgacga 120
aaggcctggc catctgggag gcctaccgan agtttgaaag cgccatcgtg gaggctgctc 180
ggctggagaa agtgcacagt ctcttccggc gacactngcg atcccactgt acgagatgga 240
ggccaccttt gcagagtatg aagaatggtc agaggagccc atgccggngt ctgtacttca 300
gngntatcag aaagcgctgg ggcagctana gaagtacaag ccttacgang aagcgctgct 360
gcaggcagan gnccctcggc nggcggaata ccaagcttac atcganttcg agatgaaaat 420
cggggatctg gccgtattca gttgatcttt gagcgttcct ggtggagaac ttgcctggnt 480
ccagncttat ggatcgccac agtngtacct agatccacag ctgaaagtta agggcttggt 540

ttatctctac angg   554

<210> 327
<211> 564
<212> DNA
<213> Mouse

<400> 327
gatgtatgtg gcaaggcctt cgaatatcca tcaagacttt caaaacataa gaaaattcat 60
acaagagaga aaccataaaa gtgtgaagta ggtggcaatg ccatccatta tccatcaata 120
ctttcttttt tttttaaatt tattttttta tnaggnattt tccncattta cattttcaat 180
gctatcccaa aagtcccca tacccacccc ccatcaacac tttcaaactg tacgaaaatt 240
catacaagaa agaaaccata cagttgtgaa atgtgtggca aagcctttga ttatccatca 300
ggnccttaga aacataagaa agttcaaaca gaagngaatc cctacaagtg tgaagtatgt 360
ggcaaggtct tcaattatca gtggngnntt tacgaaacat aancaatcca tgcaagangg 420
gaggtctaca aatatgaagt acgtgggctg ancttctatt gtccataagt actttctgna 480
aagggaatcc acacaggtga gaaacctaaa cttgggatgt atcaggtaaa tcctttgggg 540
tttccggatc cttttcctta attg   564

<210> 328
<211> 592
<212> DNA
<213> Mouse

<400> 328
cgaccactgg aagcaggaaa agcaccgtgg aggctgggat agctggtgag gagaaaagca 60
gagctactga gacaaaacga attatcatca agatggagcc agaagatatc cctgcagatg 120
acatgaaaga cttcaacatt attaaagtta ctgagaaaga ctgcaacgag tccaccgaca 180
atgatgaatt agaagatgaa cccgaggagc cattttatag atactatgtt gaggaagatg 240
tcggcattaa aaaaagtggt aggaaaaccc taaaacctcg tatgtccatc agcgtggatg 300
agagaggtgg cttagagaac atgagacccc cgantaacac cagccccata caagaggatg 360
caggagaatg catcttgtga gcngtgtgga ctcacaataa cngagggagg gaccctgtcg 420
tctcattacn tggggcnagc acatttnaaa tatctgtgca tgtngnaaat gtggacanta 480
cttgtcaagg gcagacagct tcagggnaca tgctcagggg tgcggggacc ccccaggatn 540
tggacaatgc aatggggcna aggggaacnc ngacgaggaa attggacatt gg   592

<210> 329
<211> 494
<212> DNA
<213> Mouse

<400> 329
cactactgta agacatgtca acgactggtg tgccaactct gcagagtacg gcgtacccac 60
agtgggcaca agatcacacc agtgctcagt gcctaccagg ccctcaagga taagctaaca 120
aagagcctgg catacatctt gggaaaccag gacactgtgc agacccagat ttgtgagctg 180

```
gaagagacca tcaggcacac tgaggtgagt ggtcagcaag caaaagagga ggtgtcccag 240
ctggttcggg gactaggggc tgtgctggaa gagaagcggg cctcactgct tcaggccatt 300
gaagaatgcc agcaagagcg cttatcccgg ctcagcgccc agatccatga acaccagagc 360
ctgctggatg gctcgggtct ggtgggttat cgcaggaag tccttaagga aacagaccag 420
ccttgttttg tacaagcagc caaaccagct gcataacagg attgcccgag ccactgaggn 480
cctccaagac attc                                                      494
```

```
<210> 330
<211> 581
<212> DNA
<213> Mouse
```

```
<400> 330
caggagggcc actctctcct gggcccccag ggccacctgg ccagccagga tttccaggac 60
tganggggga gtctccatcc atggacacct tacgncgcct cattcaggaa gagcttggga 120
agcagctaga agctaaactt gcctacctcc tagcccagat gcctccagca cacatgaagt 180
cctctcaagg cagacccgga cctcctggac ccctggaaa agatgggctg ccaggtcgga 240
caggcccat gggtgagcca ggccgtcctg gccaaggtgg tctggaagga ccctctggac 300
caatgggccc caaaggtgaa agaggagcca aaggtgaccc tggcacacct ggagttggtc 360
tccgaggaga gatgggtcct cctggaatac caggccaanc tggggaacct ggatacgcta 420
aagatggact tccaggaagc cctggtcctc aaggagagac agngactagc tggacattcc 480
ttgggcctcc ttggtcntcc ngggcccaac ttgggctgtg ttgaacccttt ccccagtgtt 540
gngtnanttn gncaagnctt ttntgcccgg gccaagtaat t                       581
```

```
<210> 331
<211> 562
<212> DNA
<213> Mouse
```

```
<400> 331
ctgtacattg cagaaatcag tattatttta aaagatgttc tcaaatgatt gtttactatc 60
ttacatttct ggatgttcta gggtgcctgc cattgagcat tgccttatgt ggcgttccat 120
gagttgattt tgaagccgac taggatgang aagttgggat tacatctact gataatatac 180
agagggcttg ccatttgtca tctgttgaca ctgccgatgt gcaggtgact catttaatcc 240
actgccttcc tttcttgnaa naaagggaac gggancagcc tctcaatgtg tttgtgcana 300
caggctgcag tgactaagct tgcacangac aaagcccaac cttcttgcca ncacatcaaa 360
gggcatcgtg gcgatgcgca acatctcagt gatgcccagt tcgtgtgcta tcagcngnac 420
ttganattct gtgatcacca cagatgggtt gtgtgtgttc tttcatagct gagaagaata 480
tcagcagtct angactgaca cntgagtacg ngagtgcttt gagagcangn tcaanggaag 540
agtcttcgtc gcggggtgan at                                            562
```

```
<210> 332
<211> 587
<212> DNA
<213> Mouse
```

<400> 332
```
aataactcac tgagacccta aaacaatggg ctgacgctta ttcttttgcc cgcgatcccn 60
gcaaatnccc cntnnnnnan annngaaata atnnntctgc ttnaatcgta gantatgctc 120
tttcacccct tcnanngcnt ntgcntnnan tannccantn tangctcgtn tngnaattnc 180
ggctgnnngg ggntgtnagg nccagggntn gtntctctgc cttccttana ggcnntnctn 240
gnnccangnc cgngntcntg ttacacttca nnggatnttc nccactngnt gtcngacaga 300
gttgggtcng gtgncnccnc caanactggn ggnnaggatn ncnnngtnag gagggggng 360
anangaanca tgnnnngcnt tgtcnaaaaa anggcnctgt aggnancnng gnttnccccn 420
ngncaaggag tngcctcccn ggggctggag ngggnggnnn nctgggntng cannagttgn 480
nnntgnnngc atccttangn taaagggggg ntgtcagagg nnnnatnctg ggncccggng 540
annttgaggg ttttcagcnn nnggggtnac acagggggn ngnannt           587
```

<210> 333
<211> 563
<212> DNA
<213> Mouse

<400> 333
```
gaacgtgttc aaagcacacc agacttgcaa agctcttgat tccggacagc ttaccttgat 60
tcctgacatt gtgcagtggc tcagccagaa cctgtgagtc acaggtagct gctgtgttac 120
acaacatcta acaacgtcta gccttctgcg atttctggtg cagggtcatg attagtgcat 180
ttgacagatt tggcagagtg gcttacagtg gaatgggcct gctccgactt ctggtgctct 240
gcacctggct gcatgctgca tggcccgctc tcccccagcc ccacccctgc cacaacgccc 300
cctctcacct ctgcatcctc tgggctgtaa cgactctgaa gtgctggcag ttgcaggatt 360
tgccctgcag aacatcaaca gggacccaaa aggatggcta tatgttgagc ttaacagagt 420
gcatgatgtt cgggngcact accaggaaga catgggatct ctgttccacc tcacattgga 480
tgtcttagna gaatngactg ccaagtggct cagcagggaa ggnccagaan gggctngcaa 540
acnggggatt ntcttatggg tcg                                  563
```

<210> 334
<211> 539
<212> DNA
<213> Mouse

<400> 334
```
tggagctctc gcggcggatc tgtctcgtgc gactgtggct gctgctccta tcgttcttac 60
tgggcttcag cgcgggatct gccatcgact ggcgggaacc cgaaggcaag gaagtatggg 120
attatgtgac tgtccgaaag gatgcccaca tgttctggtg gctctattat gccaccaacc 180
cttgcaagaa cttttcagag ctgccctgg tcatgtggct tcagggtggt ccgggtggtt 240
ctagcactgg atttggaaac tttgaagaaa tcggccctct tgacacccaa ctcaagcctc 300
gaaatactac ctggctgcag tgggccagtc tcctgtttgt ggataatccc gtgggcacgg 360
gcttcagcta tgtcaacaca acagatgcct acgcaaagga cctggacacg gtggcttccg 420
acatgatggt tctcctgaaa tccttctttg attgccataa agaattccag acggttccat 480
tctacatttt ctcagaatcc tacggaggaa agatggctgc tggcatcagt gtagaactt 539
```

<210> 335
<211> 551
<212> DNA
<213> Mouse

<400> 335
gccctgcca aatgccctgc agtggangat tcaagctgng ctggagagtn gcaagagaca 60
cctctgcggg agaatgccct ggaccatggg ctcaaacaga aagctgcaat atgggatctt 120
gcccaggctg ccgatatccc cctggtcaat agtgcangat ggacactntg tccccatctn 180
ctcttgtcgc tgtggcctnn ccagtnncaa tgcctcanng gancnggncc ccanacaggn 240
ggnccagcng gactnnnnna attngncnag gnttcantgg naccttnntt tnncaacccc 300
tnnnttgtca anccttggna cntgggcaag ntggaattaa ttgttcagtt anctgtggna 360
agggcnccnn ggggcgcaac aaggntttnt taaggaaaat cctgatcgng aaccangncc 420
agggttntnn ancctgcagc aatggcaaga ggtntaaccc tgnaaancct tgncctgggg 480
gncccacttg gggnaggggg cncaattaac cttgggncaa caattttgcc cgancctntg 540
tccccaaagt g   551

<210> 336
<211> 569
<212> DNA
<213> Mouse

<400> 336
cacgcctgca gatggagttg atggagtaca aagcgggcaa gcgagtgatt ggggaggacg 60
gtacagaggg ctacagtgac ctgttccgag agaacgccat gctgcagaag gagaatgggg 120
cgctgcggct ccgagtgaag gccatgcagg aagccattga tgccatcaac aaccgggtca 180
cacaactcat gagccaggag gccaacctgc ttctggccaa ggctggtgat ggcaatgagg 240
ccattggtgc tctgatccag aactacatcc gggagatcga ggagctgcga acaaagctcc 300
tggagagtga ggctatgaat gagtccctcc gcagaagcct ctcccgggct tccgctcgga 360
atccctactc cctgggagca tctccagcag gtccagcctt tggggggcagc cccgccacct 420
ccatggaaga tgcttctgaa gtgatccgca aagctaagca agacctggag cngctgaaaa 480
agaaggaggt caggcaagcg gaggaagagc ccagagaaag aagcgttcca ggaaganggg 540
ccaaactccc anggcagaaa aacagttgg   569

<210> 337
<211> 547
<212> DNA
<213> Mouse

<400> 337
cacttgcttc acctagccgg cagagcgaga caactgggta actccctgat ccggtctgct 60
tctccctaca cccagacaac atccttggcc cgcccaatct ctgccaccag cctcgagcgg 120
atcgacctga gccccgggcc tagcaccgga gggatccggg tggagaagaa tcattgctac 180
gctccagtcc tggagtctgt tagccagact gtgaggcgca acggattcct aaggctctcc 240
tggccaggca ggacttctcc cagcactcac gaggaactga ncctggactg gtgtttggag 300

124

```
gaacaagtca taacaccgat cgctcccagc acagacttgc cattgccccc accccaaac 360
ctactctctc ctgtttcatt cccccagaa cccacagttc ccaaacagtg cacctgcggg 420
agatctcaac ccagctggag aagtggacat gaggttggca ggcccctgc gcatcgtggc 480
cctaatcatc attatgggtc tcacctggat cctagtcanc atcctcctag gtggtctggt 540
gttggnc                                                    547
```


```
<210> 338
<211> 573
<212> DNA
<213> Mouse
```

```
<400> 338
gggtanaccc gagangacac aacngtacac tggtacaagg angggcagga ngnggaggaa 60
agtgacatcn ncgnattagg aaatnaaagg gccccancac cgcctggngc nancngcaag 120
cccggcccnc cgangggggc gagntccagn gngaanncag gagangaacg tgcctactnc 180
acagttacca ncacggatgn cttcncgtgg gncgncnacc ccagnagcga agngcnngnn 240
gcagccgnac gccnagagcg tgnggngctg accngngagc ngnnccgncc cnaggctgan 300
gtgcgcngga ccaaaganag ggangangna nngnanaaac cancactgcn cctgganaag 360
ggagacanca nccgccgccn gggngtgccc ncngtccagc ttgangaatc nggcgagnac 420
ctgtntgaaa nncatgatga gtcggnatct tcancatcac cgtcacanag cccctgtgc 480
ggantnanat anccccagg acgangnaga ccttacacgn cgngagantg ggatgtaatg 540
gngcanacnt gttaagctgt cnanaaagga ngn                        573
```

```
<210> 339
<211> 508
<212> DNA
<213> Mouse
```

```
<400> 339
gtcatcggca ccgtgccagc tagccagtgt tagggtagtg tcacccgtga cctgtggatt 60
gtacagaccc agcactttca agagagatgg gatgctgagt ggctgcaaag gttactggga 120
cccatgcagt gtcgaatcta agccagaatg atacctcttt ctttcacctt gacacagcag 180
tagccataga tacagatcat actctccttg agcttgaggc cctgtgacat ttggtggtca 240
taatcacaaa acagtttgag aagtctgacc tttcaggacc caggctagcc cattctttgg 300
gacctctgac cctacaagca cctgcttcat tcttctcttc tggaaagtga gggtgttata 360
ggaacatcac ctttgaggac ttagaacttg gcacagggaa agaggaggaa ccagccggtc 420
ctgggaactc aggctgctgt gaaatcgggt actgttgtct ttgacccctg cttttgtctt 480
cgactatccc atcagtgtga gcagcang                              508
```

```
<210> 340
<211> 525
<212> DNA
<213> Mouse
```

```
<400> 340
```

```
:gacgttca acaacacact tccgattcac atgatctcgc tgcctaatga ctcggagagc 60
:gggtgtga acttcatgat ggattacgct caccacaacc cagctgggct ggatgagaag 120
iggtcgcag gccctcttca cagcaatggc gtggagtacg aagcccaggg tgctgagaaa 180
jccaaccaa aatactttgt gttcaattcc cggacggcct atgcaatccc aatcctggct 240
:tgcttttg tctgccaccc tgaggtcctt cccatctaca gcgagcttaa agatcgatcc 300
jcagaaaga tgcagacggt gtccaacann gncgtctcag gcatgctcgt catgtacctt 360
:tgcggccc tctttggtta tctgagcttc tacggggacg ttgaagacga gctgctgcat 420
:ttacagca aggtctacac atttgatacg gctcttctca tggtgcgcct ggcagtcctg 480
:ggcagtga cactgaccgt gcccatcgtg gctgttcccg atccg        525
```

```
210> 341
211> 521
212> DNA
213> Mouse
```

```
400> 341
acggagggc tctgccttgc cgacagcggc ctctgccggt gcgcgccggg atacacggga 60
ctcactgcg ctaacctatg tccaccggac acttacgggn tcaactgttc ctcccgctgc 120
cctgtgaaa atgccattgc ctgctctccc atcgacggca cgtgcatctg caaggaaggt 180
ggcagcgtg gtaactgctc tgttccctgt ccccttggca cctgggggctt caattgcaat 240
ccagttgcc agtgtgccca cgacggagtc ngcagccccc aaactggagc ctgtacttgc 300
cccctgggt ggcatggtgc tcactgccag cttccctgcc cgaaggacca gtttngtgaa 360
jctgtgcca gtgtctgtna ctgtgaccac tctganggct gngacccngt tcatggacag 420
jccgatgtc aggcnggttg gatgggcnca cgctgccann nggccttgcc cgganntttt 480
gggagccaa cngcagtaac acctgtagct gcaagaatgg t        521
```

```
210> 342
211> 528
212> DNA
213> Mouse
```

```
400> 342
aacaggtaa ttctactctc agaacatcag acaaanacct cctggttggc gnagnatcan 60
agttacggc catctctcac tctacaccaa cactaagggt cggttgacta gctgaggcag 120
gggatatct tgggagctgt ccctgtgagg atcatgaatg acggttgnca gtatagagta 180
ttcatttca ntactcaagg aatagtttgc ccaacctgct tattacaccg agttagtgaa 240
tttcattcn gtttattttt tggtatggca aatgttcaaa catctcacta aacatagagg 300
gggttattt ngttnatcat gnaacaacta ccaaaaagta anggtttttna acatcngcct 360
ttcatgttg nttctganan ctgtgttcca ctttgtcttt gaacaaggnt tcccctctcg 420
cttccgttc tcactctncg naattttcag angancacag tccgtgtggn gacacacggg 480
ccagnattg nttgatacat ctctatggga taaaacatgc agtgcagg        528
```

```
210> 343
211> 529
212> DNA
```

<213> Mouse

<400> 343

```
tgtttgccag tcatgatgaa catcattagt aactactatc tttatcattt aaatgtgact 60
gaagccatcc agacctggag taccccgttc attcaagaaa ttactgacat tgttttaaa 120
attgagctat attttcaagc agctttgctt ggaatcattg ttactgcaat gccaccttac 180
tttgccatgg aaaatgcann naatcataag atcaaagctt atactcaact taaactttcg 240
ggtcttttgc catcagccta ttgggttgga caagctgttg tggatattcc cttgtttttt 300
gttgttctga tttttgatgct gggaagttta tttgcatttc atcatggnct gtatttnnan 360
cctgcaaaat tncttgctgt ggtgttttgc ctcattgcnt atgtgccctc cgtcattctg 420
ttcacgtaca tagcttcgtt cactttcaag aaaattttaa ataccaagga attttgggca 480
tttatctagt ctgtgancgc attgggcttg tgtgggcaat cacggaaac            529
```

<210> 344
<211> 528
<212> DNA
<213> Mouse

<400> 344

```
cagcgnctaa cagntaaggn gnaggtnttg gtttgccgng cactttctaa naccttncnc 60
ctnccntggn canatcttcc tnagagngng cagcagnggc cnatgcnntn gatnaaacat 120
gccaccctcn tctctggaca atcncgggac tnccncagcc tgangcccag ttgctatgnt 180
cccccnagat ctgtgcatct tcgtganacn anantgatta ttcancancc acnnagtngn 240
ntnngagann nngtngagaa tnnntntggg ggatacaaan gntnncgaca gatntgctac 300
cnntnactgt aggnannntgn tnatgtctct ctgggantcc ttccantcct ntatccatna 360
gtaaggntgt nantnnagnn aatgttgana ttantcctca cnnngttcga nngcntngnn 420
aacatccttg ggcgggntnt tnacnnngna gnttatancg gganttttncc ncnnaatgtt 480
ttancagtgn atcnanttgg nngttnaaga accttccatt tnaaggct            528
```

<210> 345
<211> 568
<212> DNA
<213> Mouse

<400> 345

```
ggcaacagtg accagagtca ggcttcagaa gccacaggtg gtcgaagggt cncaaaggcc 60
ctaatggcct ccatggctcg cagantttca anggaccca tagccntttg ggcncgcagg 120
gattnaagga ctcggttggc tgcctgggct cggagagttt gctctccctg aggtcaccta 180
gagctcgcag aggnaaggnc cgaagaagag ctgcgaagta cagtcatccc aggaacctga 240
ggnacccca ncccagagat gtagcccttt tacaaggaan ggcaaatgac ttggtgaagt 300
acctgttggn taaangacca gacaaagatt cccatcngac gcncagatat gctgaaagga 360
catcatcaaa gaaatatacn gatgtatacc ctgaaaatnn ttnaacgagg cagggctatt 420
tcctttggaa naaagggtat ttttggnaan cnaatttgaa agaaanttna caaggtttgg 480
ccaacntgnn nattcttctc cagtacccta gnggncaacn tgntgccagg gaatattttg 540
ggaacggncc caagggatnc ncctnann                                   568
```

127

<210> 346
<211> 560
<212> DNA
<213> Mouse

<400> 346
agctagccga ttacgcggat gagcatcacc ctggaatgac ttcctttgga atgtcctcat 60
ttaacctgag caacgccatc atgggcagtg ggatcttagg cttgtcctat gccatggcca 120
acaccgggat catccttttt ataatcatgc ngcttactgt ggcaatactc tcgctctact 180
cggttcacct tttgcngaag acagccaagg aangagggtc tctaatctat gaaaaattgg 240
gcgagaaagc atttggatgg cctgggaaaa ttggaggctt catctcnatt acaatgcaga 300
acattggagc catgtcaagc tacctcttca tcattaagta cgaactgcct gaagtaatca 360
gaggcattca tgggacttgn agaaaacnct ggggatggt acctcaacgg caactacctc 420
gtcttanttg tttccgtggg gatcatcctc ccgnaactct cncccttaaa aatttaggct 480
aacctttggg ctaaaaccag tgggttttc ncgcctcccg gaatggtgtt ttttcgccan 540
ttntgggtgn attaacaaaa   560

<210> 347
<211> 541
<212> DNA
<213> Mouse

<400> 347
ggacngtggt ggntgatcac actgctgttt ccaaggaaac ccttcagctg gctgaagcat 60
ttcggnatcg ctgcaatcat catcgcactc aacaacatcc tggtcatcct cgtgcctacc 120
atcaaataca tctttggatt catagggct tcttctgcca ctatgctgat tttcattctt 180
ccggctgcgt tttatctcaa.gctcgtcaag aaagaacctc taagatcacc ccagaagatt 240
gggctttgg tcttccttgt gactggaatt attttcatga tgggaagcat ggcgctcatt 300
atactcgact ggatctacaa cccgccgaat cccaatcacc actaatcccg gggagacgcg 360
tctccactgg aaacagctga aattgtctga aggacatttt agttgtcttg attgggatgt 420
tagtctgagg aattagcaag attccaaaga cgttttttcta gctctatcat gggatacttg 480
tggaagagaa aattatgggt ttgttgggaa tggtttgttg ggaatngtga aggatgcatt 540
a   541

<210> 348
<211> 530
<212> DNA
<213> Mouse

<400> 348
gcaacaggca gcttagtggt cccgcgaggc cagccgcagt ttgaatgctc agctctgcag 60
cggttctgga ccaagttgcc caaagcctac cctcacatcc atcaggtctt tttcacccag 120
gtggatgcac atggcttttc tacggaaagt caatcaagtg ttgctgcttc ttctggtcct 180
gacactctgt gggattctgt acaagaaagt tcataaggga gccgtgctta aggacaaagc 240
agacgttgat tccgagtccc ccgaggacat ggaagaagag attccagtgg tgatctgtgc 300

```
agcagcaggg agaatgggtg cagccatggc agccatcaac agcatttaca gcaacaccga 360
tgctaacctt gtgttctacg tatgggggct acggagcact tctgnctcga aatacgaaaa 420
tggatcgaca ttctaaactg agagaantaa acttcaaaat tgtggggttc aatcctagca 480
gtcctcaagg gggagnttag gnccagactt cattcgaggg cctgnggctg          530
```

```
<210> 349
<211> 543
<212> DNA
<213> Mouse
```

```
<400> 349
cctccaagtc tgacccttc tgtgtccncn ttanagaaga caatggcant tnganggagt 60
nccncaganc agaaacagcc gtcancaacc tcaacccagc cttctccaag aagttcgtgc 120
tggactacca cttcgaggag gtgcagaagc tcaagttcgc cctgtttgac caggacaagt 180
ccagtgccca gttggatgag catgatttcc ngggccagtn ctcctgcagc ctgggnacga 240
ntgtctccag caagaagatc acnaggcctc tgctgctgat gaatganaag ccagcgggga 300
agggcgtaat cacgattgca gcccaagagc tgtcagacaa ccgagtcatc acactgagcc 360
tggctggcag gaaactggat aagaaggacc tctttgggaa gtcagaccct tttcttgagt 420
tttacaagcc aggagatgat ggcaaatgga tgctggtccn taggaccgag gtgattaagt 480
acaccctgga ancggtgtgg aaaccattca ctgtnccgtn ggtgtcttgn gtgatggcga 540
cct                                                              543
```

```
<210> 350
<211> 521
<212> DNA
<213> Mouse
```

```
<400> 350
agccttcaac ttcctgctgg tctggtatta ttgcacgctg accatccggg agagcatcct 60
catcaacaat ggttccagga tcaaaggctg gtgggttttc catcattatg tgtccacatt 120
cctgtcagga gtcatgctga cctnnccaga tggactcatg taccagaagt tccggaacca 180
gttcctgtct ttctccatgt accagagctt tgtgcaattc ctgcagtatt actatcagag 240
cgggtgcctg taccgcctgc gagccctggg cgagcgccat acgatggatc tcaccgtaga 300
gggctttcag tcttggatgt ggagaggcct caccttcctg cttccgttcc tcttctttgg 360
acacttctgg caactcttca atgcgctgac attgtttaac ttggcccggg accggagtg 420
caaggagtgg caggtgctca tgtgcggctt cccccttcctc ctcctcttcc tcggcaattt 480
cttcaccacc ctggcgagtg ggtgcatcag aagtttccac a                   521
```

```
<210> 351
<211> 563
<212> DNA
<213> Mouse
```

```
<400> 351
gggtncggct gcagagaact gagacctaga gacagaattt ctgtatctga gcacctactg 60
```

```
gttggggctc cgggaggggc tgggctttgg ggccctaaag aaggtgagga tcagcttcta 120
ggcagaacaa gggatacgac gttcagcggg ctctccactt gacccaggcc ttctctttga 180
actcagcttt gctaggtgaa cttgagacat gtctgacaca agcgagagtg gtgcagatcc 240
agctcgctct cagggcaaag cttcagaaaa ggacagcggc tccgtgatgc aggacctgtt 300
gaccgtgacc cagaacttgg aggtctcaga aacaccaaag gcagaaaagg caccagaggt 360
ttcagaggct gcaaaggctc caaaagcctc tgggaaccca aaggcgacag aggtctcaaa 420
ggccccagag gcgtctgagg cagctgccac cccaggcctc acctaccaca cagctgagtg 480
agacccaagt tctggcnact gaaaaacaag agtccagcag ctgacaccaa ggacggcaga 540
agtctgacct gcaggctatg aca                                        563
```

```
<210> 352
<211> 580
<212> DNA
<213> Mouse

<400> 352
aaattcaagt gttgagctgt gccagtatct ggatgcccag gaccaagaag ctttctactg 60
tgtgaagcct ccaaatgtgc cctgtgcagc tctcacctac atgcagtcaa agaacaagga 120
tgtttcctat cttagccaac aagaaaggag cctctttgaa aggtcaaata tagctgtgga 180
gattatggaa aaatccaatg cgattagtgt ctccaaatgc aacacagaca cagctccagt 240
gaaggagaaa tgcaagctcg ggatggtatc tgcaatccct agtgggcacg tctggaaaaa 300
cgcatggact cctgcctcct gcagtctggc tccaatcaaa atgaaagact gcctgagggg 360
aaaatttatc tatctaatgg gtgattccac aatccgccag tggatggaat acttcaaaag 420
caaagtcaac acactgaggt ccgtggacct gcatgagagt gggaaactgc aacaccaact 480
tgccgtggac ttggatgaga aaattcaggc attccagtgg caaaaacatg gttanccnct 540
tatcgggtca ttgggctact ctgtcaaaga aatagggggaa                     580
```

```
<210> 353
<211> 639
<212> DNA
<213> Mouse

<400> 353
cttctacttt gccatccctg tgggcagtgg tctaggttac attgctggct ccaaagtgaa 60
agacgtggct ggagactggc actgggctct acgggtgaca ccaggnctag gagtgctggc 120
tgtcctgctg ctgttcctgg tggtccagga gcccccaaga ggagccgtgg agcgccactc 180
aggttcacca cccctgagcc ccacctcttg gtgggcagat ctgaaggcac tggcacgaaa 240
tcctagtttc gtcctgtctt cccttggctt cacctcngtg gcctttgtca cgggctccct 300
ggctctctgg gccccagcgt tcctgctgcg ctcccgggtt gttctgggag aagactccgc 360
cctgtctccc tggagattca tgctcttcct ctgacagtct catctttgga ctcatcactt 420
gctgactgga agtccnggng tgtggggctc ggaatggaaa atcaagccgg ccggcctttg 480
gccngnnttc aanccncttcg gggctngnac ccacttcgtc ttgtggcaaa ttggnccntc 540
ctgggggttn gggnggccct ttttcctcct tccctggggn ccctngggcc tnggtggccc 600
cnanagggta agccaattcn gtggggccaa ccctattnn                        639
```

<210> 354
<211> 596
<212> DNA
<213> Mouse

<400> 354

```
tatcaaagca gaatctgaga atacagaatc ntcagagcca ganagacctc ttggccccca 60
cgcaccnaga caatggagta gacaagacnn cgaggggaaa gaggcttccc aagatgaccc 120
agctcattgg cntgacnccc aacgccaccc acttacacag gccgccccgg gactgccagg 180
aactcttcca agaaggggag cggcacagtg gacttttcca gatccagcct ctggggtctc 240
caccattttt ggncaactgt gagangactt cagatggagg ctggacagtg attcagagac 300
gcctgaacgg cnctgtggac ttcaaccagt cctgggaagc ctacaaggat ggcttcggag 360
atccccaagg cgagttctgg ctgggcctgg aaaaagatgc acagcntcac agggaaccga 420
ggaaagccaa ttggctgtgc anctccagga ctggggatgg cnatgcccaa antgctccca 480
annttcccca tccantttgg ggggggggtna aggacnccag gctaaaangc ctgcaaacgt 540
caactgaagg cccccaccgg gccaattcaa ncntggggtg cccnaccaaa tgnntt 596
```

<210> 355
<211> 579
<212> DNA
<213> Mouse

<400> 355

```
aggaggagaa ctcttttgtc actcagactc ttcggaaacc tcacctctac gaaggggaca 60
agnctactgc cccaaagaca acatagagga ggccctcttg ctgctgctca tcagtgagnc 120
catggcaact cgggacgtgg tactgagtcg ggcaccagag caggcggagg accggaaagt 180
gagcctgcag aatgcttcag ccatttanga cctccngagc atcacgctgg gccggcgagg 240
ccagtatgtc atgctatcag agngcctaga gcgagccatg aagtgtgctt ttggagaatt 300
tcaccttngg naccaagtgg ccctctccat ggtggcttgt gggaagtcag cctacgccgt 360
gtcgctgctg cgtgagtgca tgaagttgca gccctcggac cccacggtac ccctgatggc 420
tgccaaagnc tgcattnggn ccctgcattg gctanaagag gcagaacacn ttnccacggt 480
antaattggg cttngaaaag gaagctggaa aantccctgc ctaaaagggg taccctgggc 540
cccgngggcc ttcacctaaa ancctncaag gncaattgn 579
```

<210> 356
<211> 527
<212> DNA
<213> Mouse

<400> 356

```
gattttcttt aatctgctct tctcatcact tccccagctg gtgactgggg tgctggataa 60
agatgttcca gctgacatgc tgctgagaga gccacagctt acaagagtg gccaaaacat 120
ggaggaatac agaccacgag cattctggtt aaacatggtg gatgctgcct ttcaaagcct 180
ggtatgcttt ttcattccct acctggccta ctatgactcc gatgtggatg tctttacctg 240
ggggacccct gtcacagcaa tagcactgtt caccttcctg ctgcacctgg gtattgaaac 300
caaaacctgg acctggctca actggttagc ctgtggcttc agtacctttt tgttttctc 360
```

```
cgtggctctg atttacaaca cttcctgtgc cacatgctac cctccatcta acccttactg 420
gaccatgcag acattactgg gtgaccctct gttctacttg acttgtctca tcgcacctat 480
tgctgcattg ttgcccagat tgttttttca aagccctcca ggggagt        527
```


```
<210> 357
<211> 571
<212> DNA
<213> Mouse
```

```
<400> 357
gcttctctcc aagcagccgc aggccctctg ccttggagct actgatctgg ccagccatgg 60
gatcctcctc taggacaact aggccattgc cccctacgcc agcggctttg aggaacctga 120
ggacagggct gaggcagagc cttcacccccc tgtatggttg tcttttccttt tacaagtctc 180
cctggccaca ctccatcccc cagtggacac cagccacgct cactgtgctc cctggggagc 240
actcacagtg cagcccccag cccccagaga ttctccaaag gcaataaggg gcagctcagt 300
ggggcacgct gctcacccag gaaacacaaa tccccctccc cctttttttc cttctttaaa 360
aacaaacaga aaagaatata tatatatata tatatattta ttttttcatg tagagttgtg 420
cnggaacacg tttgnatggc cacagtctgt ggatttcccc naaaccctgt ggggctggag 480
gtcaatgtga agactcagag gggacgtggg gggaanaggg nggcacantt tgggcagcgt 540
anattgggac ccagagncat aancgannnt g        571
```

```
<210> 358
<211> 558
<212> DNA
<213> Mouse
```

```
<400> 358
gaagaccaca gtccgtgtgg agacacacta cccagtattg tttgatacat ctctatttga 60
taaacattca gtgcaggaaa ctgtgatttt gctatatgtt tgtgtacata atctcattct 120
gcagttatca gaacgttgac atatgggaca ttggatttttt attttttaca tatgtaggtt 180
tttttttctt cacagacaaa atgtttatat catcagggtg gggnagggaa ttaagctggt 240
gggctcaaaa atccatgggt acttatctgt ccattggaga catctaaaaa ttaaagtcaa 300
agttgtgcat agttcagtaa tgctcttcac tgtttacaag actataatca tctcagcaaa 360
gtancgaagg aagggtttgt aaataatttt cagtgctaac aatggtcttt gaatttaaca 420
tgtctagaat anggttagtc cattttagtn tacatcggga acttggtgac attcatttgc 480
cattaacaga acatcgngtg gntaggataa atgcaccaac atgacccaaa aaccacattg 540
cncacatcca tggggcgg        558
```

```
<210> 359
<211> 555
<212> DNA
<213> Mouse
```

```
<400> 359
actgaggatg tgtccctgga cttcggtaat gaagaggagc tggcctttag aaaggccaag 60
```

```
atcaggcacc ccctggctac cttcttccac ctgttcttcc gagtgagtgc catcgtcacc 120
tatgtgtgct gtgactggtt cagcaagagc tttgtgggct gctttgtcac cgtgctcctc 180
ctcctgtcct ttgacttctg gtctgtgaag aatgtaactg gaagactcat ggtgggtctt 240
cgatggtgga accagataga cgaggatggg aaaagccact ggatatttga agccagaaag 300
gtctctgcaa accacatggc tgccactgag gcagaggcac gcatcttctg gcttggtctc 360
atcatctgcc cagtgatctg gattgtgttc ttcttcagta ccttgttctc cttgaagctg 420
aagtggctgg ctcttgtgat tgctggcatt tccctccaag ctgcgaacct ctacggctac 480
atcctctgta agatgggagg cgacggtgat atgcgcacag ttggcagcca gcttttctgt 540
cccagacagt gtttn                                               555
```

`<210> 360`
`<211> 584`
`<212> DNA`
`<213> Mouse`

`<400> 360`

```
accgaagctc tctggaatca tcccaagatc cagctaccac cccaactgct ggagtccctg 60
tgccatcagg tcccttccgg gttcgtctgg ctgatgggcc caacaggtgt gctggccggc 120
tagaggtgtg gcatgctgga ctctggggaa cagtctgtga tgacagctgg gacatccggg 180
atgccacagt ggcctgctgg gagctgggtt gcggaaaggt ccggccccga gtaggcaaaa 240
ctcactatgg ccctggcact gggcccatct ggttggatga catgggctgt aaaggaagtg 300
agatgtcact gagtgactgc ccctcggggg catgggggaa gcacaactgt gaccacgaag 360
aagacgtggt gctcacctgc actggctaca cgggtgatga cgattatcct tcctggacct 420
gggaccctac ttccggagan gacctgacca aagggaccaa cagtggctgc gcggcctgga 480
catacacttt cctgggctac cactacaaac actgaagtcc cctctccagc aacacagaaa 540
cttccagaca cggatgacca nggaggttat gagtcttcct ggac           584
```

`<210> 361`
`<211> 564`
`<212> DNA`
`<213> Mouse`

`<400> 361`

```
agcctgctga tcagtggcgg ctgcggctga gcttgcaggc atctagtctt gctggctcag 60
caagcccgat aagcatgaag ctgctgtgtt tngtggctgt ggtggggtgc ttgctggtgc 120
ccccagctca agccaacaag agctctgaag atatccggtg caaatgcatc tgtccgcctt 180
acagaaacat cagcgggcac atttacaacc agaatgtgtc tcagaaggac tgcaactgcc 240
tgcatgtggt ggagcccatg ccagtgcctg ccacgatgt ggaagcctac tgcctgctct 300
gcgagtgtag gtacgaggag cgtanaccac aaccatcaag gtcattattg tcatctacct 360
gtctgtggtg ggggccctct tactctacat ggccttcctg atgctggtgg accccgctca 420
tccggaagcc agatgcctat actgagcagc tgcacaatga agaggagaat gaggatgctc 480
gcaccatggc aaacagccgc tgcgtccatt ggaggacccg gggaaaaact gtnctgganc 540
gggttggaag gcgctcaaga agcg                                   564
```

`<210> 362`
```

<211> 545
<212> DNA
<213> Mouse

<400> 362
gcaacgggtc ggtgtttggc atccagaacg cctacggggt gctcttcgtg tccatgctgg 60
acaccttcaa ggccaaggac gatgacaaca tggccttcaa gacagcgtgg gtnggctcgc 120
tgtccatggg catgatcttc ttctgctgcc ccatcgtgag tgtcttcacg gacatgttcg 180
gctgccggag aacagctgtt gtgggggcag ctgtgggatt cattggactc atgtccagtt 240
cttttgtaag ctccatcgag cctctgtacc tcacctatgg aatcatattt gcctgcggct 300
gctcctttgc ctaccagccg tcactggtca tttttgggaca ctacttcaag aagcgccttg 360
gactagtcaa cggcatcgtc acggccggca gcagcgtctt cacaatcctg ctccctttgc 420
tgttaggaaa tctaatcagc agtgtgaagc tctttaacac gctgcggatc ctctgcatct 480
tcatgtttgt tctctttctg ggctggnttt aacctaaccg aacctcttgt tnccaagcac 540
caaag                                                           545


<210> 363
<211> 542
<212> DNA
<213> Mouse

<400> 363
cattgatact gttgtcttca aggctcaagc gacagaccca gacagtggcc ccaacagcta 60
tattgagtat actctcctga acccttcagg aaacaagttc agcattggga ccattgatgg 120
tgaagtgcat cttacaggag agctggacag agaggaagtt tccaattaca gcctgacagt 180
ggtggccaca gacaaagggc agccacctct gtcgtcctct actgaggttg tggttatggt 240
ccttgacatc aatgataaca accctgtttt tgctcaggct atgtaccgag tgcagattaa 300
ggagaacata ctcactggaa cagatataat ccaagtgtct gcagcagaca atgatgaagg 360
taccaacgga caggttcgct acggcatcgt gggtggaaac acacatcaag anttcaggat 420
cgactcagtg acaggggcca tcacagtggc taagtctttg gatagagaga cgaccctgct 480
tacactttaa cngttcnggc aaaagattcg ggggcaatta gccccagaac ggggctcctg 540
cn                                                              542


<210> 364
<211> 528
<212> DNA
<213> Mouse

<400> 364
ctggggtgct gtcctgtatt cctggggcct ggtgcagctg gtgctgctgg ctgggaagct 60
cnacacattg gctgctgtgg tcaccgtctt ctacttggtg gcttatgctg cggtggacct 120
gtcttgcctg agtctggagt gggcttcggc ccctaacttc cgccccacct tcagcctgtt 180
ctcctggcac acctgcctgc ttgggtggc ctctgcctgc tgatgatgtt tctcattagt 240
cctgggggcc gccggcgggt tcccttcttc tcatgggcct gctttccgct cttctcaccg 300
cacgaggagg acccagcagt tggggttatg tcagccaagc cttgcttttc caccaggttc 360
ggaagtactt gctccgcctg gatgtccgca aggagcacgt aaagttctgg gggcccaagc 420

```
tgctggncct ggtgggggaaa cccccgggggt gccctgcctc tgcttcgcct tggncaacca 480
gcttaaagaa ggggggggacc tctatgtgcc tggggcaatg tcanctct              528
```

```
<210> 365
<211> 567
<212> DNA
<213> Mouse
```

```
<400> 365
ggccgccctt ttnttntntt nttttnnnnt ttngccgaan cccncnaann tnnnanngnn 60
tcnantntnt naaaaanngg gggannnagg ntttcnatan antgggaana ttngngccnt 120
catnnctacn acaatgcaga aaattgnnnc cnngtcnnac tacctcntca ncattancta 180
agnnctgcct ganccaatng gnggggcatn aagacttgan tntnncatgn ggaatggtag 240
ntcaacggca actacctcga attatnnnng nccnnggggga tcatnctccc gcnngggtca 300
aattngaaat tnccgnaang tttgcnanac cagtggattn anaanntcct ggnaaggggt 360
nttgngtcan tgncntgann nacaaanaaa tccngattcc cnncnctctg aangctctgg 420
ancgntttna cncnaaatct gncnatnntt ttcccacngn cgantnanan gntctcgntn 480
gaaaaannac cncngggaan cntggggaaa antccacggn nggttacgnt cnnnaaaanc 540
ccnatggngc nggnngagaa ggcaagt                                    567
```

```
<210> 366
<211> 573
<212> DNA
<213> Mouse
```

```
<400> 366
gttgaaggnc attttangtg ncttgattgg gatgttagtc ntngggattn gcaagattcc 60
naagacgttt ttctagctct atcatgggnt acntgnngna gagaaaatta tgggtnttgt 120
tgggaatggn tttnttggga atggtgaagg atgcattaaa aattctgtgg nacacatttt 180
ancccaggcc gtgcagtgca gtgtgtgatg cccgagttnn gtttgcagca gctgtgcaan 240
gtgnancctg tnggntgcgt gtgttggtca gcagacaata nnctgtnccc ccatggtcac 300
tcnacttctc tccannncnca gantaacagg taatncnaan cncagaatat cacacaaaga 360
cctcctggtt ngcgaagtan catcagttac ggccatctct cactctacac cancactant 420
gggtcggttg acnagctgag ttcaggggggg natcttnggn ngcnggncct ccnagnggggg 480
annatgantn gncgggctng nnangnataa gaggtgnttt caacttgcaa ntactccaag 540
gnntagnntt tgnccncact ggntttatan nga                             573
```

```
<210> 367
<211> 573
<212> DNA
<213> Mouse
```

```
<400> 367
cnttttnang gtcctttcan naaaggccna naatannang tttccananc canccatnna 60
tgangatnnn gntgnagntg tcaangcngt nagactnaag gttaaagngc tgnnnggttg 120
```

135

```
ccagtgttgt gnggagaagc cagccattat ggtnngcant ttgcatanag agtatgntgn 180
nnngggngat tttcttcntn cnngaannnc aacnggagta gcnncnnaat ncatctcttt 240
ctgtntnaaa aaangtgann ncttgggann nttgggtcca aatnnagctg gcagaannac 300
agtcattanc actctngttg gggccgttga gccannttnn ngcaagnnct ttntaggctc 360
ttntggttca nnttcaagtg gagattncga atccattaag tgtatggggn actgtcccca 420
ganaaaccca ctgtggccag atctcactct acaggnannt tttggagatt tcccgagctc 480
tnnaagntct gagtccnccn tgacattaan gnnggtcnnc agtcnaataa caaaagcncc 540
ttgatttcaa anaacntctn cagatggact ggn                          573
```

```
<210> 368
<211> 532
<212> DNA
<213> Mouse
```

```
<400> 368
atctggccct gtgactgtgt atttctgacc tgctatctca ggctgatcag ggaacaagaa 60
cgggagctag attgttttcc tgggggttgg ggcgaggagt cccagctgac tgggaagtca 120
gaagtgaagg gatgctcatc gccgagccac actggcactg tggtggccct cccattcgca 180
cacagaccct ggattgtcat ggtctatgga atgtgggcct gctggtgtgt gctgggggcg 240
ccaggcgtgg tcatggtcct tctccacagc accatcgcgt tctgcgtggc tcagttccga 300
tccgtgctcc tgtcctggct gtgttctctc cttctgctct ccaccctaag gctgcaaagt 360
gtggaggaag ttaagagaag gtggtacaag acagagaacg agtattacct gctccagttt 420
acgctcactg ttcgctgcct gtactacacc agcttcagcc tggagctgtg ccggcagcct 480
ccgtctgcac aacctactcc atctgcgcaa ggtgcctccc attcctancc gt         532
```

```
<210> 369
<211> 510
<212> DNA
<213> Mouse
```

```
<400> 369
aatttcgatg aaatctacna ggatgaggag gacgaggagc gggccctgga atgagcannn 60
gctcgagtac tcgcncnncc cggtggtngt ccgcggctcc ggtcacgtca ccgtatttgg 120
acnnagcaac aaatttnaat cagaattccc ttcttcatta actggaaaag tagctcctga 180
agaatttaaa gccagcatca acagagttaa cagctgtctc aggaagaatc ttcctgttaa 240
tgtgcggtgg ttgctttgtg gctgcctgtg ctgctgntgc acgttagggt gcagtatgtg 300
gccagttatt tgcctcagta aaannacacg aagancgatt gagaagttat tancatggga 360
naacaatagg ttataccnna agctgtgctt tcactggaga ctgagcnaaa ggaaatgtga 420
aacgnncaac attatgggat atgtcatccn cataggantt ttntccaaag gacaccggtt 480
tttcgancag attagcattt gccttattta                                510
```

```
<210> 370
<211> 514
<212> DNA
<213> Mouse
```

136

<400> 370
```
atagcctgct cgttcaatga tttcagggta ttctttgcag atatgctgaa ggacatcatc 60
aaagaatagc ctgctcgttc aatggagaag gtatttggaa tccaattgaa agaaattgac 120
aagaatgacc acttgtatat tcttctcagt accttagagc caactgatgc aggcatattg 180
ggaacgacca aggactcacc taagctgggc ctcctcatgg tgcttcttag catcatcttc 240
atgaatggaa atcggtccag tgagggtgag tggatgggca tgcagttgaa taggtagctg 300
ttgcctgaat tccagatgct caatttctgt ctttgtctcc ttcttgcctc ctcttgcagc 360
tgtcatctgg gaggtgctgc gcaagttggg gctgcgccct gggtatgatt gggctctctc 420
agcgcttgct gtccgtgttg tctttgggca aagaagagga cgctncccag gattgcatca 480
gcctggtggg cttgtggact anggggtgg ggga                               514
```


<210> 371
<211> 572
<212> DNA
<213> Mouse

<400> 371
```
gacacagtgg ggagaccaga gcctacagcc ctttacacag gcagagctgc gagttctgtt 60
ctgcctcagg cacacgccta cttcctcctg agatactgga gtcacttcga ctgaggcaca 120
agaagaaaac ccgcagcatt cagcagggag ccgcatggat ctgaggctgt gcagtgagga 180
ggagagggcc agagcatgag gatacccggg aaatcctgac tacacggctt ccctcgaaaa 240
tgctagtaaa gtcagtttgt aacactctgg ccttggggtc acttgtccag cacagcttgg 300
tgttatgcta ttgtggtctg acgtgaaatg catctctccc ctcacccaac tttaccccgt 360
aaaaataacc aaaaggttgt ttcttctttt ctgagaaagg ggtgataggc aacagataga 420
ttttaccaaa tagattttag gtataccaat ctttatttcc tcttaaatta gagaagagtg 480
aatgttccgt gctaatccag cagtggctgg ctcgggttgg ctttccctct gcctcagcgc 540
tggaggtaga cgttaactgg aacaagnccc tt                                572
```


<210> 372
<211> 540
<212> DNA
<213> Mouse

<400> 372
```
atttctttct ctcctgttca ctgccaaaat cagacagggc ttcctttcag tgctgtggaa 60
accagctgcg attttgagat aggcctctgc aactttatc aagacaaaga gggtccgggt 120
tggaccagag taagagtaaa agcaaacatg tatcgggccg gagaccacac gacaggaaca 180
gggcactacc tgctggccaa cactaagttt acatcccagc ctggctacat cggaagactt 240
tatggtccct ctctccctgg aaacatgcag tactgtgtgc gctttcatta cgccatcttt 300
gggttttga aaatgagtga caccctagcc gtttatatct ttgaagaaaa ccatgtggtt 360
caagagaaga tctggtctgt gctcgagtcc ccgaggggtg tttggatgca agcggaaatc 420
agtttcaaga agcctatgcc cacaaaggtg gtttttatga gcctgtgcaa aagcttttgg 480
gactgtggcc tggtaagccc tggatgacat taccatacaa ctaggaaact gccggtctcc 540
```

```
<210> 373
<211> 520
<212> DNA
<213> Mouse

<400> 373
cacgtgacta caccatcaaa gtccacatga acctgctgtc cgctgtcttc ctgctggacg 60
tgagcttcct gctcagcgag cctgtggcac tgacgggctc cgaagcagcc tgtcgcacca 120
gtgccatgtt cctgcacttc tccctgcttg cctgcctctc ctggatgggc ctcgagggct 180
acaatctcta ccgactggtg gtggaggtct tcggtaccta tgtgcccggc tatctgctca 240
agctgagcat cgtgggctgg ggttttcctg tcttcctggt cactctggtg gcgttggtgg 300
atgtgaataa ctacggcccc attatcctag ctgtgcgccg gactccggaa cgtgtcacct 360
accctctat gtgctggatc cgggactccc tggtgagcta tgtcaccaac ctgggcctct 420
tcagtctggt gttcctgttc aacctggcta tgctggccac catggtggtg cagatcctgc 480
ggcttcgccc gcacagccag aactggcccc acgtgctgaa                        520
```

```
<210> 374
<211> 522
<212> DNA
<213> Mouse

<400> 374
gaggaatgcc aggacagggt gacacagtgc aagtacaagc gtattggctg cccgtggcat 60
ggcccttcc atgagctgac antgcatgaa gctgcgtgtg ctcacccgac caagacaggc 120
aacgagctga tggagatcct cgacgagatg gaccagagcc accgcaagga gatgcagctc 180
tacaacagca tcttcagcct gctcagcttt gagaagatcn gctacacaga agttcagtnc 240
cggccttacc gcactgatga cttcatcaca cgcctgtact atgaaacacc acggttcaca 300
gtactgaacc agacatgggt cctgaaggct cgtgtgaatg actcggagcg caaccccaaa 360
cctgtcgtgc aancgcanac tttccttcca nctactcctc aagagcaagg tcacagcacc 420
cctggaatnc tcttttcttc tgctcaaggg nccatacgac gangtgagga tcagtcctgt 480
tatctaccan tttgtcttca ccaaangana gcaatgaaga cc                     522
```

```
<210> 375
<211> 580
<212> DNA
<213> Mouse

<400> 375
catgacctcc tgtaccacca gctggacata gacaagtacg accaccacga gtttcctgga 60
gttgttccta ggacgttcct cgggccgctg gtgatcgcag cgttctccag ccccgtggtt 120
tatgtgctct cgcttttaga agtatccaaa ttttattctc agctgatagt cagaggagtc 180
cttgggcttg gtgtgatttc tggactctgg acattacaaa aggaagtgag acagcagttc 240
ggagccacgg tggctgtcat gttctgctgg atatcagcca cacagtttca tctcatgttc 300
tactgtacga ggacactccc caacgtgttg ccctggctg tggtcttacc agccctcaca 360
gcctggctgc agcggaggtg ggccctgttt gtctggctct cagccttcgt catnattggc 420
ttcagggctg actggccatg ctgctgggga ttgcgctgct gctgaccttg taccaaagaa 480
```

```
gactgacggt gggccanant gctccgacac gncatcccag nagggcttct ctgtntaagg 540
cttanggttg ctntggactc ctaattttgg ggaanacctt                       580
```

```
<210> 376
<211> 552
<212> DNA
<213> Mouse
```

```
<400> 376
gcatcttgaa caaagaaaac caagatgatg atggcttctg ggaaggggag ttcagtggtc 60
gaatcggtgt tttcccatcg gtgctagtgg aagagctctc agcctccgag aatggcgaca 120
ctccatggac aagagagatc cagatctctc catcccccaa gcctcacaca tccctgcctc 180
cactgcctct gtatgaccag ccacccagca gcccgtatcc cagtccagat aagaggagct 240
cccagttctt ccccggtct ccttcagcca atgaaaacag ccttcatgct gaatcaccag 300
gattctcaca ggcctcaaga cagactcctg cacctcata tggcaagctg cggcctgttc 360
gggcggcgcc gccaccaccc acacagaacc accggcggac aactgagaag atggaggacg 420
tggagatcac actggtgtga cagtggattt accttccgtt actgctacaa tcaagggcca 480
ggcttggagt ttggccagtc tcattttttt agggactttg catgatgatg actcttgaaa 540
ngagcaaaac cn                                                     552
```

```
<210> 377
<211> 567
<212> DNA
<213> Mouse
```

```
<400> 377
gtggcccaag aaagtggnat cttgggagac agaagcaaat ctgtaccagg cctcagtgtg 60
gatatggaag aagaggagga ggnggaagag gncattgacc acctggtgaa gttgcaccgc 120
cagaaactgg ccagaggcag catgcagagt ggctcctcca tgagtaccct tggcagcatt 180
annagtatct atagcgaant ggtgattttg ggaacatctc tgtgacgggc aagattgcct 240
tttcactgaa gtttgagcag aaaacacaga ctttggtcat ccatgtcaag gagtgccacc 300
agctggccta tgctgatgaa gccaagaagc gttctaaccc atatgtgaag acttatcttc 360
tgcctgacaa gtcccgccaa ggagaaagan aaaccagcat caagcgggac accatcaatc 420
cactanatga tgagaccttt cggtacgaga tttcggaatc tcttctggct cagaggnntt 480
tgcagttttc cgtttggcat catggtcgnt ttggcagaaa acactttccn tggaganngc 540
ggangtncca catggactct tggnagn                                     567
```

```
<210> 378
<211> 567
<212> DNA
<213> Mouse
```

```
<400> 378
cacactgaag aaagcaaatg aacttctgag cacaggtgtg ccgggaagtt ttttgattcg 60
agtcagtgaa aagatcaagg gctatgccct gtcctacctg tctgaggaag ctgcaaaca 120
```

139

```
tttccttata gatgcatctg ccaactctta cagcttcctg ggtgtggacc agctgcagca 180
tgctacactg gcagatttgg tggaatatca caaggaggag cccataacct ctctggggaa 240
ggaactcctt ctgtacccct gtggtcaaca agacaagctg cccgactacc tggagctctt 300
ccagtgacaa ctctcatcca gatcagcctc caacttccag ctggtttccc ctctggacag 360
acacctctga gatggacatt tgtgtgtgat gccaaaatct ctctgtgaca gagccaacag 420
tgaacaacgt ctgaggtctt cattgaaacc tctcttctgc ataaatgctg gattcagttt 480
aaggggggtgt tacctctctc tcatcctcat tctgaaagga aaaaggggga aggtacccac 540
atttgcaaca tcctaatatg gaaggnn                                    567
```

```
<210> 379
<211> 570
<212> DNA
<213> Mouse

<400> 379
cancgnangg ccanctgnaa gcccgnagcc acacccagca tccncccaca cccatccagc 60
ccccatcagc ancccaccgc cacntctttt gcaagtttac agaaacagaa acgcacaggg 120
ttcctctcgg gttgccacac agagactcac tgcttctaga aggacccgcg tcctctcggg 180
acctacactt tgggaccgtg gatttctgct tctccagatt tcgtgccgcc atcttgtcca 240
gcccttccca cagttctcct cncgtctcct cattgttgtg gcttctctct ctntccctct 300
cagaactatg gnaacacgaa cancagttgt cttcacttgt tagataccca gctcctgaaa 360
tcgtttttncn aactgacgct ccgctcacgc tgtctgcatc ttttttagaag annagtaaat 420
aatcttgaat tgatatnntt antntgcttt acaganaaaa ataagggttc aggaaaaaaa 480
aaaggtttat aaaaatntgn cantttgggn taaataggcc cccggggaaa tcccttttng 540
ganacaggtt tgggtnncac cngccccata                                 570
```

```
<210> 380
<211> 576
<212> DNA
<213> Mouse

<400> 380
gcgactgata cggctgcttg tctgtctcct cctccaaggc acgagtctcc ctggccgggg 60
tggaggagca actccgaggg cagctgtccc ttccctggan cagggtttct gaggccacag 120
gctcatcttc caatacccccg gaggaaacag ntgacgttga caattccagc ctcagcgtcc 180
cttctttggt tatgatggca tcgtgcccag gggctgcctc ctctccantc ttcacgggac 240
atggagcagc acagccatcc accagtggga gacaggaggc tgactcctcg tcagaggctt 300
gcacaggccc acagacaccc cagaacgcta cagagacttc atggaaaatt gagatcaatg 360
aagccaaaag gagactgatg gagaacatcg tactctacaa agaagagaga ctggacagca 420
gcgagctctt tggaccctga ttaccagcgc acagtgaaga cccttattct cnactggganc 480
agacaaacgt ccaggcaggg aagaggtctt tngctgccca aggtctgttg agacccacac 540
aacccccaaac attcagcttg aagcagaagg aaacat                          576
```

```
<210> 381
<211> 588
```

<210> DNA
<213> Mouse

<400> 381
cgacattctc cagtgggatt tccatgactc cttctttaac ctgacgctta agcaggtcct 60
tttcctggag tngnagcnaa ccnactgtac cancgccagc ttcgtgctca atggggacga 120
cgctggcgtt ggtacagtag gttagctgcc actccaggaa aaggaccngg accaacacct 180
cttcgtgggg cacctgatcc agaacgtggg tcccatccgg gtgccctgga gcaagtactt 240
catccccgct ctggtgatgg cggaggacag atacccgccc tactgtggta nacgcggctt 300
cctgctgtcg cgttttaccg tggccgccct acgtcgcgcc gcgcgcgtcc tccccatgtt 360
cccaatcgac gacgtgttcc tgggcatgtg tctgcagcag cagggtctgg ctcccgggac 420
gcacagcgga gtnggcantg cggggggtttt cccccctang gccangtgtg tcatcttcga 480
nccctggttc taccgnganc tggttcntgg tgaacggttt tctggccttn gagatgctgt 540
tgatgtggga atgngnttga aacagcccca gntncttntn ggggggggg   588

<210> 382
<211> 558
<212> DNA
<213> Mouse

<400> 382
cgaggacttc ttcttgtacc agcgtggcat ctacagccac acacctgtaa gncaggggag 60
gccngagcag taccgcagac atgggactca ctcagtcaag atcactgggt ggggagaaga 120
gacgctgcca gacggaagga ccattaagta ctggactgct gccaactcgt ggggcccatg 180
gtggggtgaa aggggccact tccggatcgt gcgtggcacc aacgagtgcg acatcgagac 240
cttcgtgctg ggcgtctggg gtcgcgtggg aatggaggac atggggcacc actgagtctc 300
agccactagg cgaggtggga tccacagcca cagaagaggc cttgggggcc atgcccgatg 360
aagccttgtg tgcacttcgg gaccaggtgc taatctctac agactcagat ccgcgcgtgc 420
gcgcnaaggc anaatcccac ctaggagaca aagatgcacc agggctggcg gaagccccca 480
gatattcaca gccgggaaac tgggaanggc cctgtttgga aaatgcaggg agtatagaca 540
gattccangn cccctggt   558

<210> 383
<211> 579
<212> DNA
<213> Mouse

<400> 383
tgcagtaaca cctgtacctg caagaatggt ggtacctgtg tgtctgagaa tggcaactgc 60
gtgtgcgcac cagggttccg aggcccctcc tgccagaggc cctgcccgcc tggtcgctat 120
ggcaaacgct gtgtgcaatg caagtgtaac aacaaccatt cttcctgcca cccatcggac 180
gggacctgct cctgcctggc gggctggaca ggccctgact gctccgaggc atgtccccca 240
ggccactggg gactcaaatg ctccccaactc tgccagtgtc atcatggtgg gacctgccac 300
ccccaggatg ggagctgtat ctgcacgcca ggctggactg gacccaactg cttggaaggc 360
tgcccaccaa gaatgtttgg tgtcaactgc tcccagctat gtcagtgtga tctcggagan 420
atgtgncacc cagagactgg ggcttgtgtc tgtncccag gacacagtgg tgcagactnc 480

```
aaaatgggaa gncaaggngt ccttcaccat aatgcccacc tcttccgtga cccataactc 540
actgggtgca ntgattggna ttnantaact gggaacccc                        579
```

<210> 384
<211> 496
<212> DNA
<213> Mouse

<400> 384
```
nggacgtntg ggtgagatta gcaacntcaa gtgtgtcana cggctcnncn nggagaccaa 60
gnggcaggcg gtnncnatca tattcacana cgactccgct cgnancttca cttgngactc 120
aganctggag gcagaagant ngtacaagnc actgtccgtn gaatgnctgg gatcacngnt 180
caatgacatc agnctgggag agnctganct cctggctcca ggagtanagt gtgagcagan 240
agatcgcttc aangtcttcc tgtnaccctg ccccaacctg gacgtgtatg gggagtgcaa 300
nctgnagntn antcacgaga acatctacct ctnggacata cacaancccc gcgtgaagct 360
cgtctcgtgg cccctctgct ctntgcgccg ttataggcga nntgctaacg gctttttacct 420
tttaaggcgg gcacgatgta tgacgctggg ngaaatgggc tctaanaacn tttcagaaaa 480
caaggtnggg gagcag                                                 496
```

<210> 385
<211> 491
<212> DNA
<213> Mouse

<400> 385
```
attctccagt ctatgctaac ctacaggaac tgaaaatatc acagtctgcn cttcctcctc 60
tancctggga gcccagcaat tcaagttaat ggggaatggg agactcacaa agacagttca 120
ggccgttgtt actactataa ccgcacaacc caggagcgaa cctggaaacc acctcgatgg 180
gctcgagatg tgagcacaag ccgagatttt cagagcccag gagagcaaga gcctctttca 240
tcagaagaaa actaccacag cagttgtttc agccagtcag atagtcagtg tggctctcct 300
cccagggggtt ggtcagaaga gctggatgaa cgtgggcata ccttgtatac cagtgactat 360
actaaggaaa agtgggctca agcatgttga tgatcaaggt agacagtatt actacagcgc 420
agatggatct cggtcagagt ggggganttcc caagtataat gccttcatct caggcagcca 480
agnggaatta t                                                     491
```

<210> 386
<211> 3164
<212> DNA
<213> Mouse

<400> 386
```
acgcgggggc actctagcct cgagcgctct gccgccagct ccgcggcttc caatgagact 60
cctcccgctt ctagtgggtt tctccacttt gctgaattgt tcctacacac aaaactgcag 120
caagacaacg tgtctcccca atgccaagtg cgaagtgcac aatggtgtgg aagcctgctt 180
ctgcagccag gggtactctg ggaatggtgt cacgatttgt gaagatatag atgagtgcag 240
```

```
cgagtcttct gtctgcggcg atcatgctgt gtgtgaaaac gtgaacgggg gcttcagctg 300
cttctgcagg gaaggttatc agaccgccac ggggaagtca cagttcacac ctaatgatgg 360
ctcttactgc caagatatag atgagtgcag cgagtcttct gtctgcggtg atcatgctgt 420
gtgtgaaaac gtgaacgggg gcttcagctg cttctgcagg gaaggttatc agaccgccac 480
ggggaagtca cagttcacac ctaatgatgg ctcttacygc caagaaagca tgaattcaaa 540
ttgccactta gagcatgcct gcatcgctgc aaacattaat aaaactttaa aaagaattgg 600
acccataaca gaacagacaa ctttactcca agaaatctac agaaattctg aggctgagct 660
ctctctgatg gatatagtca catacataga gatcctaact gaatcatcct cactactagg 720
ccacccgaac agcaccactt catacaagga tgcccacttc aactcaactc ttactgaatt 780
tggggaaacc atcaataatt ttgttgaaag gagtacacat aaaatgtggg accagttacc 840
gacaaatcac agaagacttc atctcacaaa actgatgcac actgctgagc tagtcacctt 900
acagatcgct cagaacatcc agaagaattc tcagtttgat atgaattcta ctgacttggc 960
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gatttctgcc tcaattagct caaatccacc cacattatat gaacttgaaa aaattacatt 1260
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aaacgacacc cacacctcct gccgctgtag tcacctgaca cactttgcga ttttgatgtc 1440
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tggcctgctc cattacttct tcttagctgc ctttgcctgg atgtgcatcg aaggcattca 1740
cctatacctc atcgttgtcg gcgtcatcta caacaagggg tttttacaca agaacttta 1800
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atattatgga accacgaaag tatgttggct gagcactgaa aacaacttca tttggagctt 1920
tataggacca gcgtgtctaa tcattcttgt gaatctcttg gcttttggag ttatcatata 1980
caaagttttc cgccacactg ctggactgaa accagaagtt agttgctatg agaacataag 2040
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ggttctccat gtagtgcatg catctgttgt gacagcctac ctcttcacag tcagcaatgc 2160
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aagtcatgat aattacagct gcaatgagat gaaaattcca agattcagat aacctgtgtg 2340
gcaaaaaatg agcctgtttt tattgttagt aattaatttc aaatccattt ttctgttcac 2400
agtataagag atgtagttaa tgtgagataa aattatggac cagagagcta cagtgtgttt 2460
tcttacatga catagttaga gatatgtcaa aaatagtact gcagatattt ggaaagtaat 2520
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atatgaatgt cctcaaggaa accactggct tgatatcttt gtgactcatg ttgcctttca 2640
aacgagttcc ctaccacctt agtaatgagt tcctttgcag gaaggagagc ataagagacg 2700
tggaggggca gagtatgaag cagtgacgaa ggcttctctg acaaggaatt gtcattccaa 2760
taaactcagc ttctctaaac ttgatgagaa aatctcaaga taaaataacg agaaggaaa 2820
tatatcctag cagtttggga attggtctga agtaaaaagc cccagatcta aatttgctac 2880
atccatgttc ttccttactc ttctaaaacc agagaaaagc cttacaactg acattatcag 2940
agatggatgc tcttacacta acattagatt tgagtgtaaa atgtttcat tccacacaga 3000
ttaagacttc aaatatgtag tcagtaaaac atagatttgt caaagtataa tactgtttat 3060
gtctttagtg aaaagaatgt gtgcagtatt ttgtctataa tattttactg ttatgaaaat 3120
```

143

taccttttaa tattaaatca gtatacttga aaaaaaaaaa aaaa   3164

<210> 387
<211> 996
<212> DNA
<213> Mouse

<400> 387
atggggaaa gcaatggtga agcatttctt gcctttaaga cctcagcctc accaacagca 60
ccagtgacaa caaatccaat ggacgaaacc ctccctggaa gtatcaacat taggattctg 120
atcccaaaat tgatgatcat catcttcgga ctggtcggac tgatgggaaa cgccattgtg 180
ttctggctcc tgggcttcca cttgcgcagg aatgccttct cagtctacat cctaaacttg 240
gccctggctg acttcctttt cctcctcagt agtatcatag cttccaccct gtttcttctc 300
aaagtttcct acctcagcat catctttcac ttgtgcttta acaccattat gatggttgtc 360
tacatcacag ggataagcat gctcagtgcc atcagcactg agtgctgcct gtctgtcctg 420
tgccccacct ggtatcgctg ccaccgtcca gtacatacat caactgtcat gtgtgctgtg 480
atctgggtcc tatccctgtt gatctgcatt ctgaatagct atttctgtgc tgtcttacat 540
accagatatg ataatgacaa tgagtgtctg gcaactaaca tctttaccgc ctcgtacatg 600
atatttttgc ttgtggtcct ctgtctgtcc agcctggctc tgctggccag gttgttctgt 660
ggcgctgggc agatgaagct taccagattt catgtgacca tcttgctgac cctttttggtt 720
tttctcctct gcgggttgcc ctttgtcatc tactgcatcc tgttattcaa gattaaggat 780
gatttccatg tattagatgt taatctttat ctagcattag aagtcctgac tgctattaac 840
agctgtgcca accccatcat ctacttcttc gtgggctctt-tcagacatca gttgaagcac 900
cagaccctca aaatggttct ccagagtgca ctgcaggaca ctcctgagac agctgaaaac 960
atggtagaga tgtcaagtaa caaagcagag ccttga   996

<210> 388
<211> 331
<212> PRT
<213> Mouse

<400> 388
Met Gly Glu Ser Asn Gly Glu Ala Phe Leu Ala Phe Lys Thr Ser Ala
 1   5   10   15

Ser Pro Thr Ala Pro Val Thr Thr Asn Pro Met Asp Glu Thr Leu Pro
            20   25   30

Gly Ser Ile Asn Ile Arg Ile Leu Ile Pro Lys Leu Met Ile Ile Ile
            35   40   45

Phe Gly Leu Val Gly Leu Met Gly Asn Ala Ile Val Phe Trp Leu Leu
        50   55   60

Gly Phe His Leu Arg Arg Asn Ala Phe Ser Val Tyr Ile Leu Asn Leu
 65   70   75   80

144

Ala Leu Ala Asp Phe Leu Phe Leu Leu Ser Ser Ile Ile Ala Ser Thr
            85   90   95

Leu Phe Leu Leu Lys Val Ser Tyr Leu Ser Ile Ile Phe His Leu Cys
            100   105   110

Phe Asn Thr Ile Met Met Val Val Tyr Ile Thr Gly Ile Ser Met Leu
            115   120   125

Ser Ala Ile Ser Thr Glu Cys Cys Leu Ser Val Leu Cys Pro Thr Trp
    130   135   140

Tyr Arg Cys His Arg Pro Val His Thr Ser Thr Val Met Cys Ala Val
145   150   155   160

Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asn Ser Tyr Phe Cys
                ·165   170   175

Ala Val Leu His Thr Arg Tyr Asp Asn Asp Asn Glu Cys Leu Ala Thr
            ·180   185   ·   190

Asn Ile Phe Thr Ala Ser Tyr Met Ile Phe Leu Leu Val Val Leu Cys
            195   200   205

Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala Gly Gln
    210   215   220

Met Lys Leu Thr Arg Phe His Val Thr Ile Leu Leu Thr Leu Leu Val
225   230   235   240

Phe Leu Leu Cys Gly Leu Pro Phe Val Ile Tyr Cys Ile Leu Leu Phe
                245   250   255

Lys Ile Lys Asp Asp Phe His Val Leu Asp Val Asn Leu Tyr Leu Ala
            260   265   270

Leu Glu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile Ile Tyr
            275   280   285·

Phe Phe Val Gly Ser Phe Arg His Gln Leu Lys His Gln Thr Leu Lys
    290   295   300

Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu Thr Ala Glu Asn
305   310   315   320

Met Val Glu Met Ser Ser Asn Lys Ala Glu Pro
                325   330

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<211> 1037
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<213> Mouse

<400> 389
Arg Gly Gly Thr Leu Ala Ser Ser Ala Leu Pro Pro Ala Pro Arg Leu
  1   5   10   15

Pro Met Arg Leu Leu Pro Leu Leu Val Gly Phe Ser Thr Leu Leu Asn
              20   25   30

Cys Ser Tyr Thr Gln Asn Cys Ser Lys Thr Thr Cys Leu Pro Asn Ala
          35   40   45

Lys Cys Glu Val His Asn Gly Val Glu Ala Cys Phe Cys Ser Gln Gly
      50   55   60

Tyr Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Ile Asp Glu Cys Ser
 65   .   70   75   80

Glu Ser Ser Val Cys Gly Asp His Ala Val Cys Glu Asn Val Asn Gly
              85   90   95

Gly Phe Ser Cys Phe Cys Arg Glu Gly Tyr Gln Thr Ala Thr Gly Lys
             100   105   110

Ser Gln Phe Thr Pro Asn Asp Gly Ser Tyr Cys Gln Asp Ile Asp Glu
         115   120   125

Cys Ser Glu Ser Ser Val Cys Gly Asp His Ala Val Cys Glu Asn Val
     130   135   140

Asn Gly Gly Phe Ser Cys Phe Cys Arg Glu Gly Tyr Gln Thr Ala Thr
145   150   155   160

Gly Lys Ser Gln Phe Thr Pro Asn Asp Gly Ser Tyr Xaa Gln Glu Ser
             165   170   175

Met Asn Ser Asn Cys His Leu Glu His Ala Cys Ile Ala Ala Asn Ile
         180   185   190

Asn Lys Thr Leu Lys Arg Ile Gly Pro Ile Thr Glu Gln Thr Thr Leu
         195   200   205

Leu Gln Glu Ile Tyr Arg Asn Ser Glu Ala Glu Leu Ser Leu Met Asp

                                  146

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        210                    215                    220

Ile Val Thr Tyr Ile Glu Ile Leu Thr Glu Ser Ser Ser Leu Leu Gly
225                    230                    235                    240

His Pro Asn Ser Thr Thr Ser Tyr Lys Asp Ala His Phe Asn Ser Thr
                   245                    250                    255

Leu Thr Glu Phe Gly Glu Thr Ile Asn Asn Phe Val Glu Arg Ser Thr
                   260                    265                    270

His Lys Met Trp Asp Gln Leu Pro Thr Asn His Arg Arg Leu His Leu
                   275                    280                    285

Thr Lys Leu Met His Thr Ala Glu Leu Val Thr Leu Gln Ile Ala Gln
          290                    295                    300

Asn Ile Gln Lys Asn Ser Gln Phe Asp Met Asn Ser Thr Asp Leu Ala
305                    310                    315                    320

Leu Lys Val Phe Ala Phe Asp Ser Thr His Met Lys His Ala His Pro
                   325                    330                    335

His Met Asn Val Asp Gly Gly Tyr Val Lys Ile Ser Pro Arg Arg Lys
                   340                    345                    350

Ala Ala His Gly Thr Thr Gly Asn Val Val Val Ala Phe Leu Cys Tyr
          355                    360                    365

Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Asp
          370                    375                    380

Thr Gln Asn Asp Asn Ser Glu Gly Lys Glu Lys Val Ile Ser Ser Val
385                    390                    395                    400

Ile Ser Ala Ser Ile Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu
                   405                    410                    415

Lys Ile Thr Phe Thr Leu Ser His Val Lys Xaa Ser Asp Lys His Arg
                   420                    425                    430

Thr Gln Cys Ala Phe Trp Asn Tyr Ser Val Asp Ala Met Asn Asn Gly
          435                    440                    445

Ser Trp Ser Thr Glu Gly Cys Glu Leu Thr His Ser Asn Asp Thr His
     450                    455                    460

Thr S r Cys Arg Cys Ser His Leu Thr His Phe Ala Ile Leu Met Ser
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465   470   475   480

Ser Thr Ser Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile
            485   490   495

Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Xaa Ile
            500   505   510

Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile
        515   520   525

His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu
        530   535   540

Ile Gly Ile Asn Ile Asn Thr Asn Lys Leu Val Cys Ser Ile Ile Ala
545   550   555   560

Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile
            565   570   575

Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys
            580   585   590

Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala
        595   600   605

Val Val Val Gly Phe Ser Ala Ser Leu Gly Tyr Arg Tyr Tyr Gly Thr
    610   615   620

Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe
625   630   635   640

Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly
            645   650   655

Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu
            660   665   670

Val Ser Cys Tyr Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala
        675   680   685

Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val
        690   695   700

Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala
705   710   715   720

Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys

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                    725   730   735

    Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe
                    740   745   750

    Gly Cys Leu Arg Thr Met Arg Ser His Asp Asn Tyr Ser Cys Asn Glu
                755   760   765

    Met Lys Ile Pro Arg Phe Arg Pro Val Trp Gln Lys Met Ser Leu Phe
            770   775   780

    Leu Leu Leu Val Ile Asn Phe Lys Ser Ile Phe Leu Phe Thr Val Glu
    785   790   795   800

    Met Leu Met Asp Lys Ile Met Asp Gln Arg Ala Thr Val Cys Phe Leu
                    805   810   815

    Thr His Ser Arg Tyr Val Lys Asn Ser Thr Ala Asp Ile Trp Lys Val
                    820   825   830

    Ile Gly Phe Ser Gly Val Ile Ser Leu Cys Pro Arg Lys Asp Phe Phe
                835   840   845

    Leu Thr Arg Glu Ile Tyr Glu Cys Pro Gln Gly Asn His Trp Leu Asp
            850   855   860

    Ile Phe Val Thr His Val Ala Phe Gln Thr Ser Ser Leu Pro Pro Val
    865   870   875   880

    Pro Leu Gln Glu Gly Glu His Lys Arg Arg Gly Gly Ala Glu Tyr Glu
                    885   890   895

    Ala Val Thr Lys Ala Ser Leu Thr Arg Asn Cys His Ser Asn Lys Leu
                900   905   910

    Ser Phe Ser Lys Leu Asp Glu Lys Ile Ser Arg Asn Asn Glu Lys Gly
                915   920   925

    Asn Ile Ser Gln Phe Gly Asn Trp Ser Glu Val Lys Ser Pro Arg Ser
            930   935   940

    Lys Phe Ala Thr Ser Met Phe Phe Leu Thr Leu Leu Lys Pro Glu Lys
    945   950   955   960

    Ser Leu Thr Thr Asp Ile Ile Arg Asp Gly Cys Ser Tyr Thr Asn Ile
                965   970   975

    Arg Phe Glu Cys Lys Met Phe Ser Phe His Thr Asp Asp Phe Lys Tyr

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                980                    985                    990

Val Val Ser Lys Thr Ile Cys Gln Ser Ile Ile Leu Phe Met Ser Leu
        995                    1000                   1005


Val Lys Arg Met Cys Ala Val Phe Cys Leu Tyr Phe Thr Val Met Lys
    1010                   1015                   1020


Ile Thr Phe Tyr Ile Ser Ile Leu Glu Lys Lys Lys Lys
1025                   1030                   1035
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INTERNATIONAL SEARCH REPORT

A.	CLASSIFICATION OF SUBJECT MATTER
IPC(7)	: C12N 15/11, 15/63, 15/70, 15/82; C07K 14/00
US CL	: 536/23.1; 435/320.1, 455, 468; 530/300, 350

According to International Patent Classification (IPC) or to both national classification and IPC

B.	FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
    U.S. : 536/23.1; 435/320.1, 455, 468; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN, EAST

C.	DOCUMENTS CONSIDERED TO BE RELEVANT.	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	PHILLIPS et al. The genetic program of hematopoietic stem cells. Science. 02 June 2000, Vol. 288, pages 1635-1640, entire document.	1-17
Y	LELIAS et al. cDNA cloning of a human mRNA preferentially expressed in hematopoietic cells and with homology to a GDP-dissociation inhibitor for the rho GTP-binding proteins. Proc. Natl. Acad. Sci. USA. February 1993, Vol. 90, pages 1479-1483, entire document.	1-17
Y	MIRAGLIA et al. A novel five-transmembrane hematopoietic stem cell antigen: Isolation, characterization, and molecular cloning. Blood. 15 December 1997, Vol. 90, No. 12, pages 5013-5021, entire document.	1-17
Y	MOORE et al. Hematopoietic activity of a stromal cell transmembrane protein containing epidermal growth factor-like repeat motifs. Proc. Natl. Acad. Sci. USA. April 1997, Vol. 94, pages 4011-4016, entire document.	1-17

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
	27 JUN 2001
Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Michael Woodward
Facsimile No. (703)305-3230	Telephone No. (703)-308-0196

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/04700

Box I Observations where certain claims were found unsearchable (Continuation f Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claim Nos.:
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claim Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-17, SEQ ID NOs:386-389

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)

INTERNATIONAL SEARCH REPORT

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING: This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-17, drawn to nucleic acid molecules, vector molecules and host cells containing said nucleic acids and polypeptides.

Group II, claims 18 and 19, drawn to antibodies.

The inventions listed as Groups I-II do not relate to a single inventive concept under PCT Rule 13.1 because, udner PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I encompasses nucleic acids, polypeptides expressed thereby, vectors and host cells containg same, respectively. Group II, however, is directed to an antibody, which antibody undergoes recognition and binding reactions wherein what is bound is different from what is bound by the compositions of Group I. For example, the polypeptides of Group I do not bind the polypeptides of Group I as the antibody of Group II does. Thus, in summary, each of Groups I-II is directed to different special technical features and thus supports this lack of unity.

Additionally, some claims are directed to more than one invention inclduing more than one sequence, which are deemed to lack unity of invention because they are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for more than one invention to be searched, the appropriate additional search fees must be paid. These inventions are as follows: For Group I, the claims include a series of polynucleotides and/or the polypeptides encoded thereby as represented by the sequences of SEQ ID Nos: 1-389. Each of these polynucleotide sequences encodes a separate polypeptide and thus represents a separate gene. Therefore, each of these genes defines its own special technical feature. For Group II, the antibodies are against two diferent proteins with sequences of SEQ ID NOs: 388 and 389, and each of the proteins, thus each of the antibodies, has its own special technical feature. In summary, for Group I, one invention is a gene represented by one polynucleotide sequence and one polypeptide sequence encoded thereby, or only the polynucleotide sequence where no polypeptide sequence encoded thereby is claimed, or the polypeptide sequence where no polynucleotide sequence encoding the polypeptide is claimed, and for Group II, one invention is an antibody against a protein with the sequence of either SEQ ID NO: 388 or SEQ ID NO:389.

During a telephone conversation with IRVING FEIT, AND LAUREN EMR, applicants elect to pay for searching an invention: Group I encompassing claims 1-17 and SEQ ID NOs: 387 and 388 in addition to Group I encompassing claims 1-17 and SEQ ID NOs: 386 and 389. Accordingly, Group I encompassing claims 1-17 and SEQ ID NOs: 386-389 are searched.